

1889



Surgery in Spain.

SURGERY IN SPAIN.

Pues qué mayor desdicha puede ser, replicó Sancho Panza. Si esta nuestra desgracia fuera de aquellas que con un par de bizmas se curan, aun no taya malo; pero voy viendo que no han de bastar todos los emplastos de un hospital para ponerlas en buen termino siquiera.—CERVANTES.

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# SURGERY IN SPAIN

*SIX YEARS' HOSPITAL AND PRIVATE  
PRACTICE IN ANDALUCIA*

BY

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# ENGLISH HOSPITAL AT HUELVA.

(CONSTRUCTED ON A PLAN DESIGNED BY THE AUTHOR.)

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THIS Hospital is built on a rising ground at the northern limit of the town of Huelva, surrounded by low undulating vine-clad hills. It stands about 200 feet above the Odiel River. A glance at the plan will show the general construction of the building. The administrative block is placed between the medical and surgical wards. A corridor connects the central block with the wards. Each corridor has a large window, which secures cross ventilation, and forms a door by which the patients gain access to the garden. The excessive light in summer is softened by Persian blinds placed outside the windows. These "Persianas" are made of wood, and are painted green. There is one window for every two beds, exclusive of the end windows. These ward windows extend from within 3 feet of the floor to within 1 foot of the ceiling, so that a patient lying in bed can look out on his more fortunate fellow working in the vineyards. The upper portion of each window opens by a pulley and cord, so as to fall inwards, throwing the inrush of air up towards the ceiling. There is also a ventilator in the wall below each window, and two large exit flues in the roof of each ward, besides a wide open flue around the stove-pipe, where it passes through the roof, thus forming a powerful extraction shaft. Each patient has 1500 cubic feet space, with ample renewal of air. The wards are raised a metre, and the administrative block half a metre, off the ground. An awning is stretched in summer over the space X. A large shaded area is thus provided for the patients. Entrance to this part of the garden is gained through the dining-room, where one of the windows forms a door. The water-closets are on the dry-earth system, and are placed along with the wash-house, mortuary, and coal-house, at a considerable distance from the Hospital, in a retired part of the garden.

# SURGERY IN SPAIN.

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## SECTION I.

### SURGERY OF THE URINARY ORGANS.

*Notes on Cadiz Surgeons and Huelva Hospitals—  
Drainage of the Bladder through the Perineum—  
Supra-pubic Lithotomy.*

IN 1883 I began the practice of my profession in Andalusia, a province where many an old rampart and walled city tell how hardly the Moor was driven from the land. On a promontory, looking west, where the Odiel and Tinto join and flow together to the sea, stands the old convent "La Rabida," the "birthplace of the new world."

Four centuries are but as yesterday in the land of the Crusades, and the race from which Columbus picked his crew still man the fishing boats of Palos. A land of great traditions; a land of hero worship, to-day as in the past, though now the "torero" is the type of a brave man, and the "matador" the hero of an hour.

For many years the greatest of the medical schools of Spain was the school of "la culta Cadiz," and foremost of those who made famous the school and gave culture to the town was Frederico Benjumeda. His name has an honourable place on the page of the surgical history of Spain, but higher is the rank it holds in the unwritten history of Andalucia.

Benjumeda may be named the Cheselden of Spain. Born at Cadiz, 1822, he was taught anatomy by his father, and graduated in that town.

It is told of him, that one day listening to his father lecturing on the surgical anatomy of lateral lithotomy, as the old man went on pointing out the many dangers that surround the operator, the youth, unable to restrain himself, rose up and exclaimed, "Fear not, my friends; this operation is of the simplest. I ask only a staff in the bladder and a penknife."

This was the man who lived to elaborate the lateral method in Spain.

Ceballos, a strong advocate of the median way, was his chief opponent. So hot grew the war in the Cadiz school, that many a stiff fight was fought among the students between the partisans of Ceballos and Benjumeda.

In 1863 we find these two men associated in the performance of an operation, designed by Ceballos, and called by him "Cateterismo Perineal Forzado." This method he recommended in preference to

puncture of the bladder for cases of retention of urine, where it is found impossible to pass a catheter by the urethra.

Ceballos first operated by this method, in January 1863, on a man sixty-six years of age, who was suffering from retention of urine and false passages, resulting from fruitless attempts to enter the bladder.

Passing a grooved staff as far as possible, he opened the membranous urethra from the perineum, and then found no difficulty in introducing through the wound a female catheter, with which he drew off the urine. This operation was afterwards often practised in Cadiz with success.

This is an instance of the employment for a special purpose of the incision so long known in French surgery as "la boutonniere." The surgical history of every civilised country shows cases in which this method has been employed, and surgeons have evolved it probably quite independently.

Benjumeda wrote little, and it is difficult to estimate with accuracy the number of his cases. Certainly he performed more than three hundred lithotomies, and his results are the best on record in Spain.

A low rate of mortality cannot be expected in a country where railway communication is so insufficient and travelling so difficult. In most instances stones had attained a large size before the patient from the hamlet in the far Sierra, at last obliged in

sheer despair to mount his ass or mule, wended his weary way across the mountain gorge and sandy plain to the far distant town. Yet not a few returned with gladness in their hearts and praises on their lips to God who gave them Benjumedá. When news came from France and England that stones were being removed by lithotrity, Benjumedá would have none of it. Taking the body of a man who had died from stone in the bladder, he showed his class, after much manipulation, how difficult it was to seize the calculus, and concluded his remarks with the question, "If this be so in the dead, are we to subject a living man to such a process?"

Benjumedá has given the world his work. The lateral method in his hands gave very successful results; but the new order in feebler hands has proved more potent still.

Benjumedá died at Cadiz, 1887.

For him to the end of a lengthened career the old ever seemed the better way, and to the old he clung with increasing tenacity. It is well he had finished his work and the knife had dropped from his hand ere the feebleness of old age had come to mar the record of a most successful life.

No man knowing the surgical history of Spain can fail to pay a tribute of admiration to those great masters, for Benjumedá and Ceballos are names writ large on the page of Spanish surgery.

I may not refer to the living, save to say that all are agreed that the best traditions of the Cadiz

school are worthily upheld by men like Cayetano del Toro.

The surgical work of which I give an account in the following pages was performed under such varying circumstances, that it is necessary to define the position of affairs in Huelva, especially in reference to the hospital work. The English Hospital was built in 1884 by the Rio Tinto Company solely for the benefit of their employees; the privilege of admission has since been extended to seamen visiting the port of Huelva. A great boon has thus been conferred on a class of men exposed to special dangers, whose sufferings when ill in a foreign port are but little realised. It is therefore a private hospital, and general patients, not belonging to the Company, are obliged to choose between their own homes and the Spanish Provincial Hospital. On this latter building I reported, in 1883, to the Board of the Rio Tinto Company as follows: "Its walls are lined with the germs of erysipelas and hospital gangrene. Medical and surgical cases are crowded together, so that it is not possible to pass between two beds without touching both. The amount of cubic feet of air per bed is one-third of the minimum allowed in modern hospitals. Small windows, placed near the roof, and clammy walls, complete the picture of a mediæval prison."

The consideration of the terrible condition of the Spanish Hospital led the Rio Tinto Company to erect the building to which I have referred, at a

cost of £1500. I am entirely responsible for the plan and construction of this hospital. It has recently been enlarged by the addition of an upper storey over the central block, at a further cost of £700. This new storey is fitted up for medical patients, and the two wards on the ground floor are now occupied by surgical cases. The patients are under the care of Miss Blackadder, a trained English nurse, who has acted as matron since the hospital was built.

It is right to state that when cholera visited Andalusia in the autumn of 1885, the Rio Tinto Company, at the suggestion of Dr J. S. Mackay, chief medical officer at Rio Tinto, placed their hospital and staff entirely at the disposal of the Ayuntamiento or Town Council of Huelva, and cases were treated in this building in all stages of the disease. I have nothing to add to the terrible tale of the year 1885 in Spain. The mortality of fifty per cent. so prevalent throughout the peninsula was not reduced in Huelva.

I must further note that I am indebted to my colleague, Dr Garcia Lopez, for valuable assistance in several of the operations described in the following pages.

#### DRAINAGE OF THE BLADDER THROUGH THE PERINEUM.

I pass to consider the surgical treatment of certain diseases of the urinary organs. On the

threshold of such an inquiry we are met by the question, "What is the action of urine on a wound?" This question may be answered clinically as follows. It depends on whether healthy urine passes over the wound, or is pent up in contact with it. In the first case it has no more action on the wound than pure water. In the second, it produces what we call urine fever.

The case of Joaquin G——, who never had a rise of temperature after operation, proves the first statement; and a fatal case, where I departed from the teaching of the Edinburgh school, and performed internal urethrotomy on an old man, has, to my mind, sufficiently proved the second. Practically, we find that urine fever is caused by absorption of some material generated when urine is for some time retained in contact with a wound. A case of Bright's disease has been observed by Mr R. Harrison, where extravasation of urine occurred without giving rise to urine fever or gangrene of scrotal tissue (there being an almost entire absence of urea in the urine). Mr Harrison concludes that the pathogenic agent is the product occurring in the ammoniacal decomposition of urine by the contained urea. Acting on these suppositions, he cites a case in which, after dilating by Holt's method, the man had a rigor, temperature 105 F. On the following day the rigor was repeated, with almost complete suppression of urine. As it appeared the patient would die if he absorbed

any more septic material from the wound, Mr R. Harrison performed median cystotomy, and put in a drainage tube. After this operation there was no more rigor or fever, and the patient made a rapid recovery. Syme's method of treating stricture by external urethrotomy, as practised in Edinburgh, no doubt owed its success to the free drainage of urine from the wound. Additional support is lent to this theory by the success of the modern treatment of cases of extravasation of urine. These are generally best treated by drainage of the bladder through the perineum, with, in some cases, suture of the ruptured urethra. Thus we procure a cicatrix which has not that dangerous tendency to contraction which always occurs when the healing part is subjected to the action of more or less pent-up urine.

CASE I.—*History of prostatic abscess cured in childhood; large burn of thigh in youth, followed by abscess and fistulæ in perineum; drainage of bladder through perineum; cure.*

Joaquin G——, aged thirteen, was brought to hospital with two fistulæ in the perineum. His mother said that when about six years of age the child began to suffer pain in the region of the bladder. Later on an abscess discharged. This condition had been treated with astringent injections, and the discharge checked, but for some years it recurred at intervals. After this the patient

enjoyed good health, until the 26th of September 1887, when he burnt the inside of his left thigh. A large ulcer formed, and continued to discharge for seven months. This illness greatly reduced the boy, who began to suffer from deep-seated pain in the perineum, with high fever. At length an abscess burst about an inch in front of the anus. Pus was also discharged through the urethra. Later, a second fistula formed in the perineum. On examination it was found that urine came through both openings during the act of micturition. All treatment adopted had failed to close the fistula. There was no stricture of the urethra. From the history I concluded that this boy suffered from abscess of the prostate when a child, and that the abscess which eventually discharged through the perineum and urethra also involved the prostate.

On November 29, 1888, I opened the membranous urethra through a small perineal incision, and inserted into the bladder a glass drainage tube. Then a small grooved director was passed up one of the fistulæ as far as possible, and a hot wire was run up the groove. The director being then removed, the hot wire came into contact with the walls of the fistula for a moment. The second fistula was treated in the same way. A silk suture was placed in the skin wound above the glass tube. A piece of rubber tubing was then attached to the glass tube and the patient carried to bed, the end of the rubber tube being placed in a receptacle below

the bed. A light dressing of cotton wool and a bandage kept the tube in its place. The temperature was taken carefully, and at no time was any rise observed.

The boy expressed himself as feeling quite comfortable.

On 1st December the dressing was changed. There had been slight oozing from both fistulæ, and a little serum from the wound, which was now entirely healed except where the glass tube lay.

After this the dressing was changed every second day, but the tube was never taken out till 6th December. It was then noted that one of the fistulæ was soundly healed, but the other, which had been the original one, was not yet quite sound. The glass tube and the rubber tube were washed and replaced after the patient had had his bowels moved. A week later both fistulæ being now healed, the glass tube was finally removed. The patient immediately after began to pass water by the urethra, only a drop or two coming by the wound. Three days later, the perineum was entirely healed. The glass tube answered well in this case, causing no irritation. The bed was throughout perfectly dry, as no urine came by the side of the tube at any time.

Eighteen days from the date of operation the boy was discharged cured.

CASE II.—*History of gonorrhœa treated with injections; formation of abscess and fistulæ in perineum and anterior abdominal wall; extreme prostration; drainage of bladder through perineum; cure.*

The patient, a Portuguese, aged thirty-seven, gave the following account of himself.

In July 1885 he contracted gonorrhœa. A chemist supplied him with a yellow liquid, which he injected three times during the day. The discharge was immediately checked, but the patient found himself unable either to pass water or defæcate. After suffering intense pain for many hours, he succeeded in passing a catheter, and so obtained a short relief. The following day he was still unable to micturate, and on trying again to pass his catheter he only drew blood.

He was now confined to bed, suffering from deep-seated pain in the perineum, and was attended daily by a doctor for about three weeks. At last an abscess burst near the anus, giving vent to a large quantity of pus mixed with urine. During the next six months one after another fistula opened in the perineum, and after much suffering the patient went to Cadiz, and was admitted into the Hospital San Juan de Dios. He lay six weeks in that hospital, and several attempts were made to pass instruments into his bladder. Blood flowed freely

on these occasions, and his condition grew daily worse.

Disappointed and weak, he asked leave to go back to his home. He was allowed to go. A month later he came to Huelva. He was carried into my room, moaning with pain, haggard and worn by many months of illness.

On examination I found that his pain was due to a large abscess which occupied the right iliac region, extending up towards the abdomen. He had seven fistulæ in the perineum, through all of which urine flowed freely, while very little came by the urethra. Under pressure pus also flowed freely from a fistula which ran up along the rectum towards the prostate.

On May 23, 1886, under chloroform I opened this abscess through the abdominal wall, giving exit to a considerable amount of pus mixed with urine. Introducing my finger I could feel that the inner wall of the abscess cavity was formed by the peritoneum, where it passes from the side of the bladder to the pelvic wall. Apparently very thin, this membrane had stood for weeks between this man and death. After washing out carefully, a drainage tube was inserted and the wound covered by an absorbent dressing. The operation was followed by great relief of general symptoms, especially pain and fever. A few days later I passed a filiform bougie into the bladder and left it in, hoping, by continuous dilation, to enlarge the canal, so as to be able to introduce a larger instrument. After

about four hours the patient sent for me, and begged to have the bougie removed, as he could not bear it. He was fevered and restless, therefore I removed it.

On 28th May I again succeeded in passing the small bougie, having previously prepared the patient for operation. I gave chloroform, and had him placed in the lithotomy position. I then proceeded to open the bladder through the perineum, with the filiform bougie as a guide. This bougie was so fine that it could not be felt through the rectum. I therefore passed a larger instrument alongside of the small one, as far as possible, that is, down to the stricture which lay in the membranous urethra. The point of this last instrument could be felt through the rectum. Making the usual median incision in the perineum, not more than one inch long, I cut in gradually till I could feel through the wound, both bougies covered only by the wall of the urethra. I had difficulty in opening the urethra, but succeeded, by passing the knife along my finger nail and so entering its point between the two bougies. Then after cutting onward through the stricture, I withdrew the larger bougie, and gradually worked my left index finger along the small one onward into the bladder.

A long glass drainage tube was easily passed into the bladder through the wound. I then proceeded to dilate the fistulous openings, touching some parts with the thermo cautery. The patient rallied well

from the operation, and all the urine came through the drainage tube. The perineum was very much indurated, and the healing process went on slowly.

The glass tube was retained for a month. It was removed for the first time a week after the operation, and was found to be quite clean. After this it was removed every two or three days. During this time the general condition of the patient greatly improved. On removing the tube the wound quickly contracted, but did not quite heal up. Some urine continued to come also through the fistula, which ran up parallel with the rectum, and evidently originated in the prostate. This passage discharged large quantities of pus, and had to be freely drained for a long time. With this exception all the fistulæ were now healed, and the patient passed water naturally, and soon gained health and strength.

I examined him again on October 21, and found no difficulty in passing a full-sized instrument, but still a drop or two of urine oozed out near the anus, and also where the glass tube had been. As this uncomfortable condition persisted, on January 8, 1887, under chloroform I passed a silver instrument into the bladder, and keeping it in position, a heated wire was passed along the old track of the drainage tube. Some cicatricial bands alongside of the rectum were then divided freely, as they seemed both to prevent the proper action of the bowel and

to interfere with the healing of the only remaining fistula. About a week after this operation all oozing had ceased, and the patient had also regained control of the bowel which had been lost since the beginning of his illness. Nearly three years have now elapsed, and this man continues in perfect health and leads an active life.

The extensive suppuration, which in this case was going on deep in the perineum, about the prostate and up even to the anterior abdominal wall, left no choice of an operation. It was necessary to drain away all urine from these abscess cavities and passages. The glass drainage tube was one of those ordinarily used in abdominal surgery, and answered well, being non-irritant and clean.

#### SUPRA-PUBIC LITHOTOMY.

As I wish to relate only such cases as have exceptional clinical interest, either from the severity of the condition or the rarity of the disease, I shall only give an account of one case of lithotomy where I was obliged, not from choice, but rather of necessity, to perform the supra-pubic operation.

CASE III.—*History of malarial fever and stone in bladder; lateral lithotomy proposed; stone adherent behind pubes; lateral method abandoned; supra-pubic lithotomy performed; convalescence protracted by malarial fever; worms, and blood in the urine; cure.*

Modesto —, of Bonares, aged 11, came to Huelva on February 24, 1888. When I first saw him he was shivering in the cold stage of an ague. His mother stated that he had suffered from stone in the bladder since he was four years of age, and had had several attacks of acute pain and passing of blood, with fever symptoms such as he then exhibited. The patient looked fairly healthy and well nourished. On the morning of Saturday, February 25, the boy took castor oil with Jarabe de Altea, and had three motions. At 2 P.M., when under chloroform, he passed some more motions, exhibiting slight prolapse of anus.

On passing Thompson's sound a stone was at once struck, but on passing a rectangular staff the stone could not be felt, nor could it be reached with a curved staff, such as is used in median lithotomy. Further careful sounding revealed the fact that the calculus was adherent to the anterior wall of the bladder behind the pubic symphysis, and that it was

fairly large in size. After repeatedly trying to touch the stone with the rectangular staff in order to perform lateral lithotomy, I decided not to cut on an instrument which could not be made to touch the calculus, although I had no reason to believe that the staff was not fairly in the bladder.

On consideration I decided to perform supra-pubic lithotomy. Therefore on February 26th an enema was administered during the forenoon, and at 2 P.M. the supra-pubic operation was performed. An injection of six ounces of weak perchloride of mercury solution (1 to 5000) made the bladder feel tense and distended. Then the rectal bag was passed into the rectum, and on injecting two ounces of water, the elevation of the bladder seemed sufficient. Through an incision, one and a-half inches long, well on to the symphysis pubis, the bladder was easily reached. It lay well forward against the incision. Just at that moment the patient bearing down passed out the rectal bag, and the bladder fell away slightly from the wound. The bag was not again introduced, but a hook was passed through the bladder wall at the upper part of the incision, and then the viscus was opened. The left index finger following the knife closely, came at once upon the calculus. Then the right index was introduced, and the opening in the bladder wall enlarged carefully with the fingers to the required extent. The stone was then easily removed with small lithotomy forceps. The wall of

the bladder contracted forcibly when the solution began to escape through the incision, and after removal of the calculus the bladder could be felt feebly grasping the finger. In this condition there is no more cavity than in a well-contracted uterus after the birth of the placenta. No attempt was made to suture the walls of the bladder. The wound was closed with silver sutures, except at lower part where the tube passed in, then dusted with iodoform and covered with an abundant dressing of sublimated wood wool. The whole was surrounded with a flannel binder, and the patient placed in bed on his right side. In four hours the dressings and sheets were saturated with urine. A glass tube, with a small piece of india-rubber tubing attached, was substituted for the ordinary drainage tube. This conveyed the urine to a small receptacle in the bed, and there was no further difficulty about keeping the patient dry. He was advised to lie mostly on his right side, but was allowed to turn when he wished. Before the operation the pulse was 130. Twenty-four hours after the operation it was 120. Temperature, 99. Patient did not seem to suffer at all from shock or pain. The following is extracted from the chart of the case:—

Next day (February 28th). Thirty-eight hours after the operation some urine was passed by the urethra. Temperature was generally normal throughout the day, but rose to 100 F. in the evening. Pulse, 110.

*February 29th.* General condition very good, slept well. Throughout the day there is slight trace of blood in the urine which passes through the tube, and also in the urine which has passed by urethra. Temperature in evening rose to 101.5 F. Pulse, 120. Milk diet was ordered.

*March 1st.* The trace of blood still continues in the urine. Patient sitting up in bed. Shorter glass tube employed.

*March 2nd.* Drainage tube removed. Blood continues in the urine.

*March 3rd.* Urine passing freely by supra-pubic opening. Still tinged with blood, very little flowing by natural passage.

*March 4th.* Urine now clear, free from blood. Passed a large earthworm, second since operation.

*March 5th.* Ordered castor oil and jarabe de Altea, which acted well three times. A third earthworm passed.

*March 6th.* Temperature normal in the forenoon. Ordered quinine, 5 grs. Urine clear, and free from blood, except on straining at a motion. Still flowing almost entirely by wound. Last night two silver sutures removed.

*March 7th.* Patient doing well. Last silver suture removed. Wound healing.

Careful observation of the temperature chart showed that the patient's condition was complicated with malarial fever.

The following is extracted from the chart for the first week of March :—

March 1st,	.	12 A.M.	98·4 Fahr.
”	”	3 P.M.	101 ”
”	2nd,	10 A.M.	100·2 ”
”	”	3 P.M.	98·4 ”
”	3rd,	9 A.M.	101·2 ”
”	”	3 P.M.	98·4 ”
”	4th,	10 A.M.	100·2 ”
”	”	4 P.M.	98·4 ”
”	5th,	9 A.M.	100·4 ”
”	”	4 P.M.	98·5 ”

After this for three weeks there was a daily rise of temperature with a daily fall to normal. Patient was treated with quinine and hydrochloric acid.

*April 7th.* Urine ceased to come by supra-pubic opening, and the patient went home cured a few days later. The stone (phosphatic) weighed 300 grains.

## SECTION II.

### ABDOMINAL SURGERY.

*Hepatotomy (a) for Hydatids, (b) for Gall-stones—  
Laparotomy (a) for Pelvic Suppuration, (b) for  
Pelvic Hæmatocele—Herniotomy.*

IN this section I proceed to discuss the diagnosis and treatment of hydatid tumours. An hydatid cyst Murchison describes as a smooth, globular, elastic, painless tumour, growing slowly, without giving rise to constitutional disturbance, and, as a rule, not causing jaundice or ascites. He continues his account of these tumours as follows:—"The diseases which may be most readily confounded with hydatids of liver are abscess, distended gall-bladder, effusion into the right pleura, aneurism and cancer. Abscess of the liver is distinguished by its more rapid development, and by the existence of rigors, fever, and pain, with impairment of the general health. When there is suppuration of the cyst or peritoneal inflammation on its outer surface, an accurate knowledge of the previous history is requisite for the diagnosis. A distended gall-bladder is recognised by its shape and position, by the development being usually accompanied by attacks

of biliary colic, and by the presence of jaundice in most cases. Extensive effusion into the right pleura may simulate an hydatid tumour, but the latter is more likely to be regarded as pleuritic effusion.

“The chief physical distinction is that the upper boundary of the dulness in pleuritic effusion is horizontal, while in hydatid tumour it is arched.

“These two morbid conditions may co-exist. Aneurism of the abdominal aorta or of the hepatic artery is mainly distinguished by pulsation, bellows murmur, and, generally, the presence of acute neuralgic pains.

“Aneurism of the hepatic artery is also invariably accompanied by jaundice, from pressure on the bile ducts. Cancer of the liver is mainly distinguished by its irregular surface, tenderness and hardness, and the absence of elasticity or feeling of fluctuation. But several hydatid tumours may project so as to form an uneven surface, or a cancerous tumour may present elasticity approaching to fluctuation. More rarely cystic tumour of the kidney, phantom tumour, and ovarian cyst have been confounded with hydatid disease. Lastly, a large hydatid tumour may escape attention, especially if it proceed from the posterior part of the liver; and the diagnosis is sometimes rendered difficult by the pressure of the tumour on the bile ducts or large veins, so as to produce jaundice, ascites, or anasarca of the lower limbs.”

In the cases hereafter related, it will be seen that

the diagnosis had to be made from several of these conditions. I pass on to consider the treatment of hydatid disease as it occurs in the liver.

The success obtained by simple puncture with a fine trocar, and closure of the opening after withdrawal of some of the hydatid fluid, has had the effect of hindering operators from looking for a better way. Yet a careful consideration of the results of this operation makes it very desirable that surgeons should not rest content with this method.

Mr Lawrence Humphry, Cambridge, relates a case where puncture with a hypodermic needle was followed by serious symptoms.\* “The patient hardly felt the puncture, but a few minutes after he was seized with extreme faintness and dyspnoea; his face became livid and pale, and his lips blue; he vomited two or three times, and the pulse failed at the wrist. His extremities became cold, and the heart sounds were almost inaudible. Stimulants were given, and a sinapism applied over the heart; but he remained in this collapsed condition for nearly half an hour. A profuse irritable urticaria then appeared on the abdomen and legs and on the extensor aspect of the arms. The chest and face were free from eruption, but were covered with a copious sweat. The rash persisted for a few

\* “An Inquiry into the Severe Symptoms occasionally following Puncture of Hydatid Cysts of the Liver.” *Lancet*, 15th January 1887.

hours, but gradually subsided, and the patient had fairly recovered by the next morning."

Mr Humphry continues as follows:—"It occasionally happens that puncture of an hydatid cyst of the liver is immediately fatal, and I remember once to have witnessed such an unfortunate accident." A fatal case is also recorded by Mr Bryant in the Clinical Society's "Transactions," vol. xi., in which sudden death occurred five minutes after the operation of tapping a hepatic hydatid.

Two or three cases are mentioned in Dieulafoy's treatise on "Pneumatic Aspiration," in which the patient was seized with vomiting, dyspnœa, and urticaria soon after tapping these cysts; and the appearance of an erythematous rash or urticaria the following day, with rise of temperature and sore throat, is often observed. Mr Humphry and Professor Roy further performed an experiment on a dog to prove the poisonous effect of hydatid fluid when injected into a vein.

Professor Roy remarks:—"It may be concluded from this experiment, so far as is possible from a single experiment, that there is in hydatid fluid some substance which has a powerful effect on both the heart and the respiratory mechanism." The hydatid fluid may enter a wounded vein at the time of puncture, or escape into the peritoneal cavity, and be subsequently absorbed. In the post-mortem of the fatal case recorded by Mr Bryant, it was found that immediately inside the hydatid capsule the

trocar had transfixed a very large vein, which, on subsequent dissection, was found to be the trunk of the portal vein, and it was supposed that after withdrawal of the trocar, hydatid fluid escaped into the portal vein and acted as a fatal poison.

It may be said that such cases are rare. This, however, is of little consequence to the unfortunate who suffers. It cannot be good surgery to thrust a trocar, however small, beyond the ken of the operator. But it has been found that a tumour which has been successfully tapped, and even a cyst which has undergone apparently a spontaneous cure, may, as Dr Church has shown, light up fatal inflammation ("Treatment of Hydatid Tumours of Liver," 1868).

Murchison also relates the following case ("Diseases of the Liver," p. 126, case 41).

A man, aged seventy-two, died of lobular pneumonia and gangrene of lung. On post-mortem examination there was lobular pneumonia of the lower lobe of right lung, and quite at base a gangrenous portion about the size of an orange. Lung was here firmly adherent to diaphragm, and diaphragm to liver, and the broken down tissue of the gangrenous lung communicated by several openings with a cavity in upper part of right lobe of the liver, measuring about three inches in diameter. This cavity contained much calcareous matter, and a quantity of dirty greyish, very fetid pultaceous substance, which Murchison regards as the remains of an old hydatid. Certainly nothing more favourable

to the treatment of these tumours by puncture can be adduced, than the results of one hundred and nine cases tabulated by Murchison. In eighty of the cases the operation appears to have been perfectly successful; in sixteen cases it was followed by suppuration, and a free opening was made into the sac. All the sixteen ultimately made a good recovery. In eleven of the cases the operation was followed by a fatal result. Dr Arthur Sennett (*Lancet*, June 18, 1887) reports ten deaths in one hundred of his cases operated on by puncture, and he believes this to be an average result of cases thus treated in Australia.

Briefly, then, we find that this method of puncture is sometimes immediately fatal, sometimes it is followed by suppuration of the cyst with all its dangers. It has a mortality of 10 per cent., and a still higher mortality, if cases be added which are ultimately fatal from the pultaceous mass left behind in the liver.

Surely surgeons should seek better results than this in the treatment of a disease not in itself fatal.

Consideration of these facts, and the frequent return of the disease after simple tapping, led to other methods of treatment. Witness the discussion in January 1887, at the Royal Medical and Chirurgical Society, on a paper read by Mr Richard Barwell, on widely incising by a two stage method, hydatids of the liver. The distinguished surgeons who took part in that discussion differed greatly as

to the details of the operation, but were generally of opinion that these cysts should be opened, and their contents freely evacuated.

In the *Birmingham Medical Review*, October 1881, Mr Lawson Tait showed that these tumours could be safely evacuated at one operation, through a comparatively small incision.

This position has since been abundantly proved. My experience in Spain showing how varied are the conditions we may find in hydatid cysts of the liver leads me to recommend the following method of operating in the treatment of this disease: that the operator open the abdomen; evacuate all the contents of the tumour, washing out everything, including the parent cyst; sew the opening into the cavity left to the lips of the abdominal incision, and drain. This treatment must not be confounded with the method sometimes adopted of puncture, with a large trocar, leaving a permanent opening. Concerning this latter method, Murchison draws attention to the dangers to which a person must be subjected who has a large suppurating or perhaps gangrenous hydatid of the liver, communicating by a free opening with the external atmosphere.

Case XXXII. of his list ("Diseases of Liver," p. 113) was treated by this method. During the ten days that followed the operation several pints of a 2 per cent. carbolic solution were injected three times a day, and on each occasion large numbers of hydatid vesicles came away with a fetid purulent

fluid, containing a large quantity of green bile. Under this treatment the patient lived ten days. At the post-mortem the left lobe of the liver had disappeared, and its place was occupied by an enormous hydatid cyst. This cyst contained almost two pints of very fetid thick green fluid, with large fragments of parent hydatid cyst lying loose in the cavity.

Will any one, reading this case, deny that the fatal result might have been averted by thorough washing out at the time of the operation, followed by drainage? In such cases it is evident that efficient drainage can only be effected after the cyst has been emptied of all its solid contents. A cavity cannot be drained while shreds of hydatid membrane are peeling from its walls. In surgery, as in ethics, perfection of practice, like completeness of opinion, is always approaching, never arrived. False action is the fruit of false speculation. But as the members of our profession in every country are inspired by true principle, cases as they occur will be promptly and faithfully inquired into, and the area in which cure is possible will be ever widening.

In this hope I now give an account of all the cases of hydatid tumour which have come before me for operation.

My first introduction to hydatid disease in Spain was somewhat remarkable. It happened as follows:—

CASE I.—*Young woman presents tumour of the breast ; diagnosis ; fibro cystic growth ; during operation cyst accidentally opened ; escape of numerous hydatid cysts ; complete removal of tumour ; cure.*

In November 1883, a young woman aged twenty-seven, presented herself at the hospital at Rio Tinto complaining of a tumour which lay along the outer border of the right breast, not involving the gland. The patient stated that she was aware of the existence of the tumour for the last seven years, but that during the last few months it had become painful, and was growing rapidly. Fluctuation was not distinctly felt, and the tumour, which was fixed and not mobile in any direction, presented the character of a fibro-cystic growth ; but during the dissection for its removal, while carefully trying to clear it off the ribs, I cut the cyst, and out came numerous beautiful hydatids. As the mass was almost separated, I went on and removed it entirely. The large wound left healed up rapidly, and the patient made a perfect recovery. In this case an exploratory incision would have led to a less severe operation. Hydatid tumours are very rarely met with in the breast, and in such cases are generally diagnosed during the operation for their removal.

When the history of the following case is examined, it will be seen that it exemplifies the life-history of

hydatids as they occur in the human liver. There is first a period of many months or years during which the disease gives no sign of its existence. Its deadly advance is made beneath the mask of health.

CASE II.—*Slight cough and lung symptoms, followed by rise of pulse and rigors; pointing of hepatic abscess between costal cartilages; large quantity of hydatid shreds and pus washed out; drainage of cavity; cure.*

The patient was a healthy married woman, aged forty-six. She began to complain in the summer of 1887 of a slight cough, accompanied by an uneasy feeling near the base of the right lung. Her doctor, on repeated examination, found no sign of disease. During October a bulging appeared in the hepatic region, and towards the end of the month rises of pulse and temperature, with slight rigors, indicated the formation of pus. It now became evident that an abscess was pointing between the costal cartilages of the fifth and sixth ribs. On 1st November the family physician drew off with a trocar a large quantity of pus. From this date the patient's condition grew daily worse. The opening left by the trocar continued to discharge, and after a few days pieces of hydatid cyst came away. Alarming symptoms set in, and on 24th November I saw the patient for the first time.

On the following day, under chloroform, I opened the abscess where it had been punctured along the upper border of the sixth costal cartilage. By repeated washings with warm water a large quantity of fetid pus and hydatid shreds was cleared out. A long glass drainage tube was then inserted, and an absorbent dressing applied. After this there was marked improvement, and a week later the patient was able to undertake a railway journey of twenty miles to Huelva. The glass tube gave trouble by frequently slipping out; as I had not excised any piece of the rib, a rigid tube was necessary to ensure free drainage. Later on a rubber catheter was used. The cavity was washed out daily with warm water, care being taken to leave it perfectly dry by encouraging the patient to lie face downwards as much as possible. About the end of December some more blackened pieces of cyst came away. In January a soft rubber tube was used instead of the catheter, and later still a catgut drain was employed.

The patient left Huelva cured, no sinus remaining on February 13, 1888, eleven weeks after the operation. Murchison states that bursting of an hydatid tumour through the lower intercostal spaces is not a common mode of termination, although several cases are on record. He also notes "that nearly one-half of the cases where an external opening forms spontaneously are fatal." Of these cases he writes as follows:—"The dangers are mainly

four, viz. : (a) Exhaustion from the protracted discharge ; (b) Pyœmia and secondary inflammations ; (c) Hœmorrhage from the cavity in the liver ; (d) Peritonitis ” (“ Diseases of the Liver,” p. 83).

This case suggests the question, Why does an hydatid cyst suppurate ?

It has been said that the entrance of bile determines this change in the tumour. But the condition of the interior of the cyst in one of my cases leads me to think that this does not hold good in all instances.

My next case was a man aged twenty-six, who sought advice on account of pain. This pain, shooting through to the back and accompanied by slight transient attacks of jaundice, made the diagnosis between hydatid tumour and a distended gall-bladder somewhat difficult. The following is a history of the case :—

CASE III.—*Slow formation of tumour in epigastrium, painless at first, now steadily increasing in size, and painful ; laparotomy ; evacuation of much hydatid fluid and daughter cysts ; drainage ; separation of mother cyst a month later ; cure.*

M. O. L., aged twenty-six, consulted me early in April 1888. He stated that about two years pre-

viously he had observed a swelling in the epigastrium, which continued steadily increasing. For the last few months he had had severe attacks of pain shooting from the tumour backwards.

On examination I found a tense fluctuating tumour, reaching from the lower surface of the liver nearly to the umbilicus.

The patient had had slight transient attacks of jaundice.

On April 11, 1888, I opened the abdomen by a small incision in the middle line, about two inches above the umbilicus. There was no adhesion of the cyst to the abdominal wall. After steadying the tumour with a hook its fluid contents were removed by means of a trocar. The opening made by the trocar was then enlarged with a knife, and the cyst wall was sewn to the lips of the abdominal incision. By traction forward with the hook there was little difficulty in preventing the entrance of fluid to the abdominal cavity.

After clearing the cyst of many daughter cysts, a drainage tube was introduced and the wound covered with a dressing of absorbent wool. This operation took place at 11.30 A.M. At 9 P.M. the temperature was 101.5 F.; pulse, 100. On the following morning, 12th April, the temperature was still 101.5 F. After this both temperature and pulse fell to normal. There was no abdominal tenderness after operation, nor any pain.

On 18th April the continuous suture was removed, and the cyst was afterwards washed out daily with warm water. A week later the patient was allowed to walk about. Suppuration continued abundant till 13th May, when the parent cyst was at last taken away in pieces by means of pincers and Clover's aspirator. After this the suppuration gradually diminished.

On 22nd July I left Spain for England, and was absent for three months. About the beginning of August the man who was dressing this case allowed a large rubber drainage tube about five inches long to slip into the abscess cavity. Those who tried to remove the tube failed, and the patient continued to have an abundant foul-smelling discharge from the wound till I returned to Spain and removed the foreign body. I found it doubled on itself and lying far back. The wound had contracted greatly in front of it. The tube was unaltered after lying three months in the patient's body. After its removal the wound quickly contracted, and was soundly healed, no sinus remaining on 11th November 1888, exactly seven months from date of operation.

On 21st November I was again called to see this patient. The cicatrix had opened and given exit to a large quantity of clear fluid, followed by a more turbid liquid, semi-purulent in character. The patient had felt transient pains a few days before, chiefly about the right shoulder. Careful drainage was carried out, and within a fortnight the wound had

soundly healed. No further trouble arose. The man now enjoys perfect health.

In this case I ought to have removed the parent cyst at the first operation. This was not done, and a month elapsed before I got it entirely away.

My fourth case has many points of interest. At the time of operation it was found that bile was freely entering the cyst, and from the construction of the tumour it is evident that this must have been going on to a greater or less extent for many years. Yet the cyst showed no signs of suppuration or of decrease.

CASE IV.—*Feeling of inconvenience in epigastrium for fifteen years, followed by formation of painful pulsating tumour; food frequently vomited; laparotomy, large hydatid tumour completely emptied of all its contents; rapid recovery; formation of secondary serous tumour in communication with lung; incision, drainage; cure.*

Jose G——, aged forty-six, came to see me on account of a tumour in the epigastric region. He stated that lately he had frequently vomited his food, and was then suffering considerable pain. When the patient lay down on his back a very marked pulsation was visible in the epigastrium. On palpitation a globular tumour could be felt, which rose and fell with respiration, and which

pulsated synchronously with the heart's action. Fluctuation as of fluid under high pressure could be felt, but I have never been able to detect anything like hydatid fremitus. The patient said that he had felt distinct inconvenience in the epigastric region for the last fifteen years, but that the tumour had become visible and painful only during the last two or three months. He had seen several medical men. They had diagnosed aneurism, and had deprecated any operative proceeding. After careful consideration I concluded that the man was suffering from a hydatid tumour. I proposed abdominal section, which was at once accepted.

On 29th June 1888, I opened the abdominal cavity in the middle line, right over the prominence of the tumour, about one inch below the point of the sternum. My incision in the abdominal wall was little over one inch in length. The tumour was found to move freely up and down with the patient's deep breathing, and vomiting occurring at this moment I waited till the patient was more completely under the influence of the anæsthetic; then, fixing the tumour with a hook, I emptied its fluid contents through a trocar. After enlarging upwards the trocar opening I proceeded to sew the lips of the opening in the cyst to the edges of the abdominal incision by means of a continuous silk suture. Having thus prevented the possibility of escape of the contents of the cyst into the abdominal cavity, I began to wash

out the tumour with warm water, introduced in a continuous current by means of an Ingram's syringe, to which I had attached a large soft catheter. In this way I removed an enormous quantity of hydatids, varying in size from a small pea to a Tangerine orange. Some still larger were removed in pieces by means of forceps. On introducing my finger to examine the inner lining of the tumour, I found it bristling in several parts with sharp hard bodies. Some of the larger cysts removed had also these bodies in their walls. The inside of the tumour was not lined with any distinct membrane, and although the fluid which at first flowed through the trocar was ordinary hydatid fluid, very soon a yellower liquid escaped, which gave a reaction of bile. Many of the broken down cysts were in a flabby condition, and stained greenish yellow. On scraping with the finger nail the inner surface of the tumour, a yellowish fluid stained the finger. It was thus evident that bile had been for some time entering this hydatid cyst; yet although some of the small cysts were broken down and degenerating, others were apparently unaffected, and according to the patient's statement the tumour had been steadily increasing in size for the last few months. When the cyst had been completely emptied of all its contents, a wide rubber drainage tube was inserted.

About eight inches of tube was required to reach to the bottom of the cavity. A wood wool dress-

ing was applied over the wound, and the patient put to bed. Twenty-four hours later, the dressing was considerably stained with bile. This patient had no distressing symptoms, and rapidly improved after the operation. At the end of a week the continuous suture was removed, the cyst wall being now firmly attached at the abdominal incision. Thorough attention was paid to drainage. A large tube kept the external orifice patent, but the cavity was never washed out during the after treatment. The flow of bile became gradually less, the cavity contracted, and the patient went home on 29th October 1888, exactly four months from date of operation. The wound was perfectly healed, no sinus remaining. Special care had been taken in this case to prevent the wound from healing "en falso," as the Spaniards say. Notwithstanding this, at the end of two months this patient returned to Huelva complaining of great pain over the lower part of the chest wall on the right side. Friction sounds could be heard over the base of the right lung. I could not feel fluctuation over former site of tumour, however I thought it well to make an incision through the old cicatrix to a considerable depth. No fluid was found at the moment, but twenty-four hours after a large quantity of dark brown turbid fluid burst through the incision, and the patient obtained immediate relief. I passed a probe upwards then to the right, and slightly backwards for eight inches. When the patient coughed,

it was evident that a communication existed with the lung. Frothy bloody serum was ejected through the wound for a week. The drainage tube was gradually shortened till the wound healed. The patient then went home in good health, having gained considerably in weight.

I am not able to account for the second formation of fluid which occurred in this case. The attack was not accompanied by jaundice, nor did the fluid ejected give the reaction of bile.

The four cases I have related, although examples of the same disease, are yet so varied and so unlike each other as to simulate different conditions. Perhaps in this the explanation may be found of the unsatisfactory results frequently obtained by former methods of operating. Certainly it is painfully evident that surgeons are still undecided as to the best method of treating this disease. The following quotation from "A System of Surgery," edited by Holmes and Hulke (vol. iii., p. 894), is sufficient proof of this. "In the case of a hydatid tumour, it seems better to wait until the fact of growth is decidedly established; since such tumours sometimes remain long stationary, and the operation is a dangerous one. But if the cyst be increasing in size, and if it be superficial, the risk of leaving it alone becomes probably greater than that of operating. Several plans are in use. The one which was till lately, I think, the most common in English practice, is to make an opening into the sac with

patassa fusa ; other plans are to cut down on to the peritoneum, have the wound stuffed with charpie in order to excite adhesions, and then, after a few days, prolong the incision into the cyst; or simply to puncture and evacuate the tumour, as was done by Sir B. Brodie ; or to keep the puncture open, and establish a sinus, through which the sac is washed out with warm water, diluted alcohol, solution of iodine, or even bile." The patassa fusa treatment here described recalls to my mind painful recollections of a Spanish hospital, where the inmates may still be seen writhing under the application of Vienna paste.

Apparently the question of time has also yet to be settled, although it is universally admitted that every patient carrying a hydatid tumour is liable to sudden death from the most trivial blow or accident.

The following may be added to the long list of such unfortunate cases already on record.

On 2nd July 1888, a young woman, nineteen years of age, consulted me on account of an abdominal tumour. She had been aware of the presence of the tumour for almost six months, but she complained of no distressing symptoms beyond a feeling of uneasiness in the epigastric region. The liver dulness extended quite to the umbilicus. I diagnosed a large hydatid cyst, and arranged to operate a week later.

But before three days had passed, the girl's father came to tell me that his daughter was dead. While

working about the house she had been suddenly seized with severe abdominal pain, and died within a few hours in agony.

I asked the father to allow me to conduct a post-mortem examination. He replied, "You did not save her when alive, she shall not be disturbed now dead."

In the light of this experience, I venture to suggest that the treatment of hydatid tumours should follow close on their discovery.

#### (b.) GALL-STONES.

I have but one case of cholecystotomy to record, and in this case the existence of malignant disease destroyed the result of operation.

CASE V.—*History of anæmia, jaundice, intermittent swelling in epigastrium; jaundice growing deep and permanent, accompanied by distended gall-bladder and ascites; cholecystotomy, removal of single large gall-stone; relief; immense flow of bile from fistula; death six weeks later; post-mortem; cancer of pancreas and left lobe of liver.*

Maria Alvarez G——, aged forty years, married, had had five children, of which two are still alive. She had been in the habit of suckling her children for twenty months each, but her last child she weaned at fifteen months of age. In her family history she

knew no instance of jaundice or of malignant disease, but, from what I have since heard, it is probable that her father died of cancer of the stomach. In the beginning of March 1886, the patient gave the following account of her illness.

Eight months previously, while nursing her youngest child, she began to feel unwell, and became very bloodless; she therefore weaned the child, and took as a tonic arsenic and iron. Still her condition grew worse, and she began to suffer great pain in her back and chest; and about this time one of her friends remarked that her eyes were yellow. She took to bed. When fifteen days in bed she became jaundiced, but feeling somewhat better, began to go about again, although the pain and jaundice persisted. Last Christmas she had felt a swelling in the situation of the gall-bladder. Being somewhat alarmed, she drew the attention of a female friend to this region, but to her surprise the swelling had disappeared. The patient, seeking for an explanation of this phenomenon, soon found that the swelling was generally present at night, but absent in the morning. During the three months before I saw her, menstruation, which till then had been normal, ceased to occur, being, in the patient's opinion, replaced by a flow of blood which took place from the gum near the last right molar on its outer aspect. The bleeding was painless, and made itself felt by flowing into the mouth. Very

soon it ceased to flow, and became a mere oozing. This oozing of blood from the gum lasted four or five days, as the patient's menstrual period had always done, and it occurred on each successive period during a term of four months. Afterwards, fluid began to collect in the abdomen, and had steadily increased.

On examination I found the patient deeply jaundiced, and suffering from great abdominal distension. I could with difficulty make out a rounded body where she had formerly observed the intermittent swelling. Examination of the chest revealed nothing abnormal. Since the patient came under observation the pulse had generally been above 100; the temperature normal; the urine free from albumen, but deeply bile-stained; the motions, generally two a day, formed, and of a clayey-white colour, evidently without bile.

On 27th March I tapped the abdomen below the umbilicus, and drew off 400 ounces of fluid, deeply bile-stained. The abdomen was now so flaccid, that its anterior wall bulged slightly over the situation of the tumour, and a careful examination left little doubt that we had to deal with a distended gall-bladder. The liver was slightly enlarged, and presented a smooth, regular border. The patient was most anxious to have something done which would relieve her of pain, which was at times intense, and which she affirmed was worse after

meals. Being of opinion that she suffered from impacted calculus, I determined to operate.

On 28th March the ascites had returned to such an extent that there was evidently no time to be lost. Therefore at 4 P.M. the following operation was performed. Transfixing a small fold of skin over the prominence of the tumour, along the external border of the right rectus muscle, about midway between the margin of the ribs and the umbilicus, I dissected down and exposed the peritoneum. On opening the cavity a considerable amount of ascetic bile-stained fluid escaped, and the base of the gall-bladder presented itself in the wound. Here an assistant steadied it with a hook, while I drew off its contents by means of a trocar. The gall-bladder was distended to about the size of a large pear, and its contents seemed to consist of a sticky bile. Withdrawing the trocar, I enlarged the aperture in the fundus upwards where it seemed least vascular, and on inserting the little finger of my right hand I felt a calculus impacted in the cystic duct. With the index finger of the left hand in the abdominal cavity outside the gall-bladder, acting against the little finger inside, I extracted the calculus without injury to the duct. After I had ascertained that there were no more gall-stones, the aperture in the gall-bladder was secured to the lips of the abdominal incision by means of a continuous silk suture. The incision in the abdominal wall measured less than two inches, while the aperture

in the fundus of the gall-bladder was just enough to allow the exit of the stone. No vessel was met with which needed ligature, nor was there the smallest inconvenience from bleeding. The calculus weighed 2 grammes 60 centigrammes, and was about the size of an olive. Antiseptic precautions consisted in previously boiling the needles and silk in a solution of carbolic acid. A slight dressing of absorbent cotton wool was fastened over the wound with plaster, and over all was placed a fine flannel binder. The patient rallied at once from the operation, and expressed herself as feeling very well and free from pain. The anæsthetic employed was a mixture of chloroform and ether.

*March 29th.* Wound dressed at 10 A.M., temperature 99·8°; pulse, 96. Skin around wound deeply stained with bile, which flowed freely from the fistula, drenching the absorbent dressing and soaking through to the mattress. The patient was put on milk diet with a little corn-flour. She had passed two motions during the night, formed, but without bile. The wound healed rapidly by first intention. With a view to ascertaining the quantity of bile poured out, an abundant dressing of absorbent wool was weighed daily at 10 A.M. before putting it over the wound, and again on removal the following day at the same hour. The table annexed will show the quantity of bile excreted every twenty-four hours.

DATE.	Quantity of Bile in 24 hours.	No. of Motions in 24 hours.	Temperature.		Pulse.	
			10 A.M.	10 P.M.	10 A.M.	10 P.M.
1886.	Grammes.		Degr.	Degr.		
March 30 .	112	3	99°0	100°5	80	100
„ 31 .	110	2	99°4	100°5	96	108
April 1 .	112	5	100°6	101°4	110	106
„ 2 .	60	2	99°0	100°4	98	112
„ 3 .	77	6	98°5	101°0	100	120
„ 4 .	62	5	98°4	101°4	114	108
„ 5 .	86	8	99°8	101°0	100	108
„ 6 .	75	7	98°5	100°4	100	100
„ 7 .	103	6	99°0	100°2	96	112
„ 8 .	67	4	99°2	99°2	104	108
„ 9 .	85	7	98°4	98°4	96	96
„ 10 .	58	3	98°4	99°8	96	104
„ 11 .	77	2	98°4	100°2	108	108
„ 12 .	77	4	98°4	100°0	104	104
„ 13 .	65	3	99°0	101°0	112	100
„ 14 .	77	3	99°2	101°0	108	110
„ 15 .	82	4	98°4	98°4	104	104
„ 16 .	73	5	99°0	101°0	100	108
„ 17 .	70	6	98°4	99°0	108	106
„ 18 .	61	5	98°4	100°8	104	98
„ 19 .	66	1	98°4	100°0	102	104
„ 20 .	80	3	98°4	99°8	104	102
„ 21 .	58	4	98°4	100°2	100	104
„ 22 .	67	3	100°0	101°2	120	125
„ 23 .	53	4	99°8	100°8	112	120
„ 24 .	1	2	99°8	100°6	96	104

On 1st April ascites was again noticed, and the patient was much troubled by flatulence. She was ordered Hunyadi Janos water. After taking some corn-flour and milk she vomited, and the vomit seemed to contain bile. On the 3rd it was noticed that the ascites had almost disappeared, but flatulence distressed the patient. She took Hunyadi water again. On the 6th her motions contained

traces of blood, which passed off on the 9th. Then her general condition improved considerably, and she was able to sit in her chair a few hours daily. At this time she took large quantities of milk, corn-flour, custard, and beef tea. She had no pain since the operation, and was very cheerful, but fluid was again accumulating in the abdomen. In this way she went on, with but little change, till the morning of 23rd April. On that morning the flow of bile ceased suddenly, so that the dressing removed on the morning of the 24th only contained a trace. The ascites had become so distressing that I tapped, drawing off on the afternoon of that day 294 ounces of a bile-stained fluid containing a considerable amount of blood. After this the record is that of a patient dying slowly, but without pain, of an incurable disease. On 8th May she died. The post-mortem examination revealed cancer of the pancreas and liver, especially the left lobe. The common bile duct was completely occluded, and perforation had occurred at its origin.

On reviewing the case, it appears to me that the tale of her illness, as told by the patient, is a history of biliary calculus. The intermittent character of the tumour she felt on her abdomen seemed rather to indicate calculus causing obstruction than stenosis of the duct from malignant disease; while the transitory jaundice referred to by her friend, and the colicky pain shooting through to the back, were alike characteristic of gall-stones. I expected to

find a calculus causing obstruction of the common duct; and on finding that the only stone present was fixed in the cystic duct, I concluded that its presence had occasioned hepatitis and catarrh of the common duct. The smooth regular border which the right lobe of the liver presented favoured this view. No doubt the ascites, the frequent pulse, and evening rise of temperature indicated a malignant origin. On 7th April I telegraphed to Mr Lawson Tait, asking his opinion with regard to treatment of the fistulous opening in view of the excessive flow of bile. He very kindly replied at once, and wrote to me saying that the condition was new to him, but that he suspected malignant disease. The sudden stoppage of the flow of bile from the fistula was no doubt due to perforation of the common duct, and to the same cause we may attribute the presence of blood in the abdomen. The occurrence of monthly bleeding from the gums, which was noted by the patient, cannot, I think, be regarded as in any way related to menstruation, when we consider the pathological conditions presented by the case.

#### PELVIC HÆMATOCELE.

This condition must, I think, be very common in any country where it is impossible to persuade a woman to remain three days in bed after labour.

The following is a typical illustration of the sequence of events in Spain.

On 16th November 1886, I was called to see a woman who had been forty-eight hours in labour. The child was dead. The body had been born some hours, but the attendant had not been able to get down the arms. When this difficulty was overcome, the head followed immediately with the placenta, and there was no more trouble at the time. Three weeks later this woman called at my house, complaining of severe pain in the pelvis. On examination I found on the right side, and somewhat behind the uterus, a tumour, painful to touch, and fixed. Being of opinion that she was suffering from extra-peritoneal hæmatocele, I persuaded the patient to rest in bed for a week, paying due attention to the condition of the alimentary canal. In her case this was sufficient to initiate a process which ended in the complete absorption of the effused blood.

Although it cannot be doubted that most cases of extra-peritoneal hæmatocele have a like favourable ending, yet it is certain that when the effusion of blood is large, and the patient weak, an abscess with all its dangers is a not uncommon result.

I shall relate a case in which this occurred.

CASE VI.—*History of post-partem extra-peritoneal hæmatocele going on to suppuration; patient greatly emaciated; large abscess filling pelvis; laparotomy; drainage; communication between intestine and abscess cavity formed during convalescence; cure.*

Ines D—, aged twenty-four years, gives the following history. She has been married for four years and a half, and has given birth to three children. Two days after the birth of her last child she felt a severe pain in the region of the left ovary. Since then—that is, during the last six months—she has never been free from pain and feverishness. The menses have been completely suppressed throughout her illness; no treatment has given any relief; she has been losing flesh rapidly, and feels weaker every day.

When seen the patient presented a most emaciated appearance. On examination a hard tumour, fixed and painful to the touch, could be felt in the left iliac region, filling it up and extending nearly to the middle line forward, and up to the umbilicus. Per vaginam, a rounded mass, painful to the touch, was felt to the left of the uterus, and extending round behind it. Womb fixed, cervix hard. Bimanually, indistinct fluctuation was felt in the tumour, but there was no indication of its pointing anywhere. The patient bore examination very badly, and was very despondent

about her condition. She was put on extract of malt, and allowed to rest for a week, as she had come a long diligence journey. During the week her temperature was always above normal, and her pulse between 110 and 120 F. Urine free from albumen, and normal in quantity. Heart and other organs healthy. Motions fairly regular, and presenting nothing of note.

A second examination of the tumour revealed nothing new, and on 29th April 1884 the following operation was performed. I opened the abdomen in the middle line, beginning about midway between the umbilicus and the pubes; the incision was carried down two inches. On opening the peritoneum the index finger came immediately upon the uterus and roof of the pelvis, which was raised up so as to lie against the anterior abdominal wall, but was not adherent. The uterus was quite immovable, and fixed to a large swelling, which lay behind it and surrounded its left side. Deep fluctuation could be felt at a point about an inch behind and half an inch to the left of the left corner of the uterus. The incision was enlarged upwards to get at this point, which, with the whole pelvic roof, was raised to within an inch of the umbilicus. With considerable difficulty a Wells trocar was here pushed into the tumour, a sponge having been first placed immediately behind the intended opening. About fourteen ounces of pale yellow pus immediately ran out through the tube. On withdrawing the trocar, a little blood and pus

followed, and was caught up by the sponge. On introducing the index finger into the abscess cavity it became apparent that the trocar had traversed quite one inch and a half of indurated tissue before it entered the cavity. After clearing away the blood and cleansing the abdomen with warm sponges, the opening into the abscess was secured by a continuous suture to the abdominal wall at the upper part of the incision. This was the most difficult part of the operation. It was a belying down of the abdominal wall to the wall of the abscess, the latter being immovable. The rest of the abdominal incision being closed with silk sutures, a drainage tube was passed into the abscess cavity, and an iodoform dressing applied, with strips of plaster and a flannel binder. The anæsthetic employed was a mixture of chloroform and ether. A good deal of vomiting followed the operation, lasting till the evening of the next day.

*April 30th.* Temperature normal; pulse, 104 F. Wound dressed. Ordered a little brandy in warm water for vomiting.

*May 1st.* Temperature normal; pulse, 88. Had a good motion. Complains of slight pain throughout the abdomen. Wound dressed. *2nd.* Temperature normal; pulse, 90. Wound dressed. Discharge passed freely into the dressings around the tube. *3rd.* Temperature normal; pulse, 114 F. Patient feels very well, and has a good appetite. Wound dressed. Pus of a dark red colour. *4th.* Tempera-

ture normal ; pulse, 100 F. Wound dressed. Pus smelling peculiarly. 5<sup>th</sup>. Temperature normal ; pulse, 100 F. Wound dressed. It is now evident that there is a communication between the intestine and the abscess cavity, as the discharge is mixed with fæces. 6<sup>th</sup>. Temperature normal ; pulse, 112 F. Patient excited and frightened, because she has felt while straining at stool that a good deal of fæcal matter comes by the tube and not by the anus. Wound dressed. 7<sup>th</sup>. Temperature, 99.5° ; pulse, 114 F. The patient feels very well and is not alarmed, as she has passed three motions by the anus and very little by the wound. Since the first passage of the fæcal matter by the tube the abdominal wound is carefully protected by an arrangement of mackintosh and adhesive plaster, and the attendant constantly renews the dressing around the mouth of the tube ; also the abscess cavity is frequently syringed out with carbolic lotion. 12<sup>th</sup>. Temperature and pulse normal. Wound dressed ; almost no discharge. Continuous suture removed. The abdominal incision is firmly healed. The patient eats and sleeps well. 21<sup>st</sup>. Drainage tube removed. Cavity quite contracted. Patient sitting up in bed. The woman went home restored to health on 31<sup>st</sup> May. Menstruation returned at the end of July, and continued regular. A year after the operation I was told that the patient continued to enjoy perfect health.

I think there can be little doubt that this case is

an example of suppurating hæmatocele, but a special interest is added by the communication which occurred on the fourth day after operation between the bowel and abscess cavity. It is probable that the case furnishes an illustration of the course of such abscesses as described by Dr West, who says:—"When suppuration takes place, the matter makes its way outwardly through the vagina or through the intestinal canal in almost all cases in which the inflammation is limited to the parts contained within the broad ligament." From the length of the illness, which lasted six months, it seems probable that the pus had begun to seek an outlet towards the bowel. On evacuating the abscess, the weakened part of the intestinal wall would yield towards the cavity, and finally gave way when the patient strained at stool. No pus was at any time observed in the motions. The rapid progress towards complete recovery did not appear to be delayed by the complication which occurred.

The following case is rare in itself, being an instance of absolute and complete closure of the vagina following a tedious labour. It is also very suggestive in relation to pelvic hæmatocele.

CASE VII.—*History of protracted labour followed by complete closure of vagina; pelvic pain at each menstrual period for nine years; operation; vagina opened up with great difficulty; kept open for three months; sound passed up to fundus uteri frequently; no menstrual flow; no relief; relapse to former condition.*

A. S., aged twenty-seven, menstruated at fifteen years of age, married at seventeen, and at nineteen gave birth to a child after four days' labour, during which she had no assistance. She was confined to bed for three months. On regaining health she found that her vagina was quite closed by cicatricial tissue. About a year after the birth of the child, she began to have all the feelings that accompany menstruation. This had gone on for nine years, and still the discomfort at each monthly period was so great that the patient was confined to bed with abdominal pain and headache. This pain was not located in any one spot, but was felt generally throughout the pelvis.

On August 21, 1885, under chloroform I opened up the vagina. The difficulty of dissecting up to the os of the uterus without penetrating either the urethra, the bladder, or the rectum was very great. I would not have succeeded but for the assistance obtained by having previously dilated the urethra so as to admit my index finger into the bladder.

Through the bladder wall the cervix could be felt, and at last I exposed the os lying free in a small cul-de-sac. The uterine sound passed up through the womb could be distinctly felt above the pubis.

The uterus was decidedly small, if not atrophied. By means of tents, and by passing the speculum, I kept the newly formed vagina open for over three months. The way was thus open, yet no menstrual fluid came by the vagina, although I passed the sound both before and during a period, and moved the womb about, feeling the sound at the fundus through the abdominal wall. Repeated careful examination proved that no fistulous track existed connecting the genital canal with the bladder or rectum. The patient also stated decidedly that she had never passed blood by the bowel or by the urethra. Seeing that she derived no benefit from the operation, the woman gradually neglected herself, and the opening soon resumed its former closed condition.

This case is of interest to the surgeon in as much as the operative treatment adopted entirely failed to give relief. Further, the question is raised whether any other proceeding, such as the removal of the uterine appendages and ovaries, would be more successful. In this relation I submit that there is no reason to believe either ovaries or appendages diseased, there being no objective or subjective phenomena between one monthly period and the next, but only a painful increase of those phenomena which constitute the menstrual molimia.

There can be little doubt that the sufferings of the patient were at first directly due to the closure which had occurred after a difficult labour and the absence of any outlet for the menstrual fluid. At the present time it may be doubted whether there is any secretion of menstrual fluid. My observations after the operation lead me to think that there is not, or certainly if there be, it does not enter the womb. But whatever the present condition after a period of nine years may be, it will, I think, generally be admitted that in the first stage the flow occurred and entered the womb, and possibly reached the cul-de-sac at the top of the vagina, which was patent. The problem to be solved is, What became of this fluid each month? How was it absorbed? The case seems to me to have important bearings on the whole question of menstruation. It is conceivable that the menstrual fluid found its way into the peritoneal cavity, and was there absorbed like other intra-peritoneal effusions without the formation of any tumour.

The case I shall now relate differs from those already recorded, in as much as the hæmatocele was, I believe, due to rupture of an ectopic gestation.

CASE VIII.—*History of pelvic pain; probable rupture of ectopic gestation, with formation of large extra-peritoneal hæmatocele; intense paroxysmal pains; abdomen the size of a seven months' pregnancy and excessively painful; laparotomy; drainage; relief; death five weeks later from septicæmia.*

Mrs X——, aged twenty-seven, married six years, stated that she had one child alive, five years of age. Three years ago she had a miscarriage at six months.

On 10th May 1888, the patient consulted me, complaining of severe pain and a lump in the left pelvic region. On examination I felt a small tumour, very painful to the touch, and fixed behind the womb to the left side. The patient said she had suffered pain for two months, and that the tumour was growing larger. Menstruation had been irregular before this illness, but had appeared twice since the onset of the pain. I felt in the posterior fornix a large artery pulsating, and heard a sound over the tumour like the uterine soufflé. The case appeared to be one of extra-uterine gestation. A month later I was called to see the patient, and found her sitting in an arm-chair, as she could not lie down.

At intervals of about five minutes she was seized with severe paroxysmal pains, which lasted for about one or two minutes.

During these pains the pulse rose from 100 to 110, and when the pain passed off the patient frequently fainted. For some days she had been taking large quantities of morphia, which hardly gave any relief. The abdomen had the appearance of a seven months' pregnancy, œdematous, and excessively painful on the slightest pressure. The suffering was like that of a patient at the end of the first stage of labour. Under chloroform I passed a sound, and proved the empty condition of the womb. I then proceeded to open the abdomen in the middle line, below the umbilicus. On opening the peritoneum a large mass appeared, filling the pelvis and extending upwards nearly to the costal margin. This mass was at no part adherent to the anterior abdominal wall, but was closely in contact with it. The intestines having been pushed up and back out of reach, could not be felt. This was evidently a hæmatocele, having for its anterior wall the peritoneum of the broad ligament. This membrane was exceedingly thin and friable. On opening the tumour I gave exit to five litres of blood serum. On introducing my finger into the cyst, I was able to perforate two small cavities, giving exit to further quantities of the same fluid. Considerable hæmorrhage occurred on perforating the walls of these cavities. The walls exactly resembled placental tissue. The patient was showing signs of weakness from loss of blood. I then stitched the opening in the cyst wall to the lips of the abdominal incision,

and introduced a glass drainage tube, applying over all a mercurial wood wool dressing. The patient was conveyed to bed. This operation gave complete relief from pain. For two days after the operation the temperature was 99·5 F., the pulse 88. Although the discharge was very slight, I feared to remove the drainage tube. On the third day after operation there was a marked rise of temperature, 102·5 F., and the pulse 120. The wound had evidently become septic. The weather was exceedingly warm (over 90 F. in the shade), and the surroundings of the patient very bad. After this I began to wash out the pelvis twice daily. The state of the patient became more and more critical, although she continued to take food fairly well. She was evidently suffering from septic absorption. Three weeks after the operation her condition was so bad that I put her under chloroform again, so as to wash out the pelvis thoroughly. I got away a considerable quantity of sloughs, and established more thorough drainage by introducing two tubes. At this date I found the walls of the cavity, which were formerly so vascular, hardened and consolidated, and covered with sloughing tissue. The immediate result of this washing out was a slight improvement in the condition of the patient, and the daily washings could be more satisfactorily carried out. But the discharge continued thin and watery, mixed with occasional sloughs, smelling very badly, even suggesting the possibility of faecal

contamination. Marked œdema of the lower limbs, which was present before the operation, had continued ever since, and now became very considerable. The temperature was seldom under 102 F., or pulse below 120. Marked rigors set in two or three times a day followed by high fever, and the patient died of septicæmia on July 17, 1888, five weeks after the operation. No trace of a fœtus was observed. Unfortunately a post-mortem examination was not obtained.

MM. Bernutz and Goupil ("Diseases of Women," New Sydenham Society, vol. xxviii., p. 267), write as follows on the diagnosis of extra-uterine gestation:—"Pain is the only premonitory symptom of rupture. This pain, which has existed from the commencement of the pregnancy—far more acute than the ill-defined sufferings which women in general experience—remains usually in the same situation. It is always excessively severe, and is accompanied by a symptom which seems to be constant; the symptom to which I refer is syncope. Syncope furnishes important diagnostic indications. It is generally wanting in the hæmotocèles, which occur in the unimpregnated."

M. Goupil here refers to the pain and syncope due to loss of blood attendant on intra-peritoneal rupture of an ectopic gestation. But in the case I have narrated, the rupture took place into the broad ligament, and the paroxysmal pain, which was so marked, was clearly due to tension. This view at

least explains the complete relief from pain afforded by the operation.

#### HERNIOTOMY.

I shall give an account of the following case of strangulated hernia, because of its sequel, which, so far as I am aware, is unique.

CASE IX.—*History of rupture followed by strangulation of omental hernia; herniotomy; ligation of omental pedicle; recovery; formation of abdominal abscess a month later; abdominal section; abscess of omentum drained; cure.*

On June 3, 1887, I was called by Dr Lopez to operate on Antonio T——, aged forty. He had been ruptured a year before, and on various occasions the hernia had descended, but he had always been able to replace it. Lately he had grown negligent in the use of his truss. When I saw the patient he complained of dragging pains in the abdomen, chiefly about the umbilicus. He vomited at intervals. His hernia had been down for forty eight hours. Taxis having failed, I proceeded to operate. On opening the sac, I came upon a dark mass of omentum, which did not bleed on being cut. Passing my finger up into the inguinal canal, I could feel a small nuckle of intestine, which, after a little manipulation, slipped back into the abdomen.

Making pressure on the scrotum, I caused a mass of omentum, as large as one's fist, to protrude from the wound. This mass was cut off after ligaturing its pedicle, which was broad, needing five ligatures of silk. The pedicle was then left in the inguinal canal, and the incision, which was two inches in length, was closed, except at its lower part, where a drainage tube was inserted. About two hours after the operation the patient had a copious motion. After this there was no rise of temperature nor any other bad symptom. The wound continued to discharge a drop or two of pus, from the track of the drainage tube till the 26th June, when one of the ligatures of the pedicles came away. Another followed on the 28th. Then the patient began to go about. A month later, on 27th July, he came complaining of pain and swelling in the inguinal canal. I opened the cicatrix, giving vent to a few drops of pus. A small cat-gut drain was placed in the wound. A few days after this, another ligature came away.

The patient now began to suffer deep-seated pain in the abdomen, below the umbilicus, with high temperature (102 Fahr.) and weak pulse. His condition grew daily worse. On careful palpation of the abdomen, a peculiar doughy feeling led me to believe that the patient was suffering from an abscess of the omentum.

On August 17, through a small incision in the middle line, just below the umbilicus, I cut down on

the omentum, which was adherent to the peritoneum of the anterior abdominal wall. On incising the membrane, thick creamy pus welled up. A large drainage tube was inserted, and the patient conveyed to bed. The temperature quickly fell to normal, the pulse grew stronger, and the general condition rapidly improved. By the end of August the patient was convalescent.

This man is now in perfect health, and does not require to use a truss.

It has been disputed whether or not an omental hernia is likely to give rise to symptoms of strangulation. Where these symptoms exist in a case of omental hernia, they may sometimes be due, as they probably were in this case, to a small piece of bowel, which might easily be reduced along with the omentum unperceived. The abdominal abscess was probably due to irritation of the omentum by the silk ligatures. These all eventually came away through the hernia wound.

## SECTION III.

### EXCISION OF TUMOURS.

#### *Cancer—Epulis—Congenital Coccygeal Growths.*

CANCER is very common in Andalusia. “El buitre (vulture) de la economia,” as a Spanish surgeon has named the disease, attacks the following parts in order of frequency, so far as I have observed :

Cervix uteri, breast, face, tongue, larynx, stomach, liver, rectum, labia, penis.

I shall relate briefly a case which is an instance of a rare condition.

CASE I.—*History of formation of cancerous tumour in right breast, followed by similar growth in the left; no glandular enlargement in either axilla; excision of both breasts; rapid recovery.*

I give the following as noted in my case-book :—

“ A woman, aged forty-six, the mother of twelve children, had felt for about three months a hard lump in the left breast just beneath the nipple. She now complains of lancinating pain in the breast and left arm. Slight retraction of the nipple is noted. The tumour is the size of an olive.

The right breast also contains a small hard nodule about the size of a cherry. This growth is situated at the lower and outer part of the gland, and is not painful. There is no discernible glandular enlargement in either axilla, nor any hardness anywhere apart from the tumour.

The patient has lost flesh rapidly of late. Her sister died within a year of its appearance, of cancer in the breast. Although not much encouraged, this woman was anxious to have the growths removed, having seen her sister's case, where no operation was performed. Accordingly, I removed both breasts on 10th July 1883. The patient was very weak after the operation; but recovery was rapid. On 20th July, the tenth day after the operation, the patient was allowed to get up for an hour or two, both wounds being healed in their entire extent.

### EPULIS.

CASE II.—*Extraction of molar tooth followed by formation of tumour; excision of tumour; recurrence of growth in three months; rapid extension; left half of lower jaw involved; cheek ulcerated; excision of tumour and jaw; cure.*

Emilia de G——, aged twenty-six, born in Madrid, had the last lower molar tooth extracted

in 1877. The extraction was followed by a good deal of bleeding and pain. Three months after, she felt a hard painless swelling on the outer aspect of the bone, corresponding to the situation of the extracted tooth. This slowly increased, till in 1881 it had attained the size of an orange. The patient then consulted Senor Don Enrique Perez Andres, who removed the tumour. In three months the growth had returned in the same place, hard and painless as before, but growing now more rapidly, so that on 20th December 1883, the left cheek was found lightly stretched over a tumour which entirely surrounded the left half of the lower jaw. The growth extended upwards to the articulation, inward half-way across the mouth, forward it reached the symphysis, and downward it projected on the neck. The alveolar border of the upper jaw was carried inwards nearly to the middle line, the teeth of this jaw being received into a deep sulcus on the upper surface of the tumour. Examination of that part accessible from the mouth gave rise to pain, and this part also bled when touched, and was of a bright, fleshy red colour. The cheek, which was adherent, was so tightly stretched that it had ulcerated at the most prominent point, but the ulcer had healed. Neighbouring glands were unaffected. The patient was of a nervous temperament, with a fast and weak pulse, very anæmic and emaciated, as she could not masticate her food, and had lived for some months entirely on fluids. There was

slight congestion at the apex of the right lung. Heart and other organs were healthy. The urine was normal in quantity, and did not contain albumen. Her family history was good, and embraced no instance of tumour.

“On December 26th, 1883, the patient being under an anæsthetic, the following operation was performed. Entering the knife at the temporo-maxillary articulation, an incision was carried down along the posterior border of the ascending ramus, round the angle, and along the body of the jaw for about half its length. This was met by a second incision running down and back through the lower lip, a little to the right of the middle line. Grasping the cheek with the left hand it was reflected up from the tumour, which then came well into view. Clearing the anterior attachments of the tongue from the bone, the saw was applied at the level of the second incisor tooth of the right side, which had been previously extracted. The lateral attachments of the tongue being severed close to the bone, the temporal muscle was cut at its insertion into the coronoid process, and the jaw being drawn outward and slightly downwards, the disarticulation was easily effected, and the mass removed. The facial artery which was small, the inferior labials, and one or two muscular branches, were ligatured. The large cheek-flap fell well into position, and was retained by silver, silk, and catgut sutures. Placing a slip of lint in the deep incision,

a light dressing of protective and boracic wool was applied, and the patient placed in bed on her right side. During the after dressing, the mouth was daily sponged out with a mixture containing equal parts of tepid water and tincture of eucalyptus globulus. A short cough proved troublesome for a few days, but was relieved by inhalations of the same tincture. The temperature did not rise above 102 F., nor the pulse above 120. The wound healed rapidly throughout its entire extent, except where a small opening remained, about the middle of the incision, discharging saliva. The patient sat up in bed on the tenth day after the operation, dressed on the fourteenth, and returned to her home on the twentieth. Five years have passed, and this woman is still in perfect health. . . . Microscopic examination of the tumour shows a dense fibrous structure containing nucleated spindle cells and groups of multinucleated mycoid, or giant cells. . . . The case illustrates the certainty with which these epuli return, unless that part of bone from which they spring be removed with them; in the former operation the tumour had simply been cut off, and its site freely cauterised. It also shows well the increased rapidity of growth in tumours reproduced of the fibroid variety. Limitation by the symphysis and by the articulation was well marked, as the growth extended quite to the joint, and forward to the middle line. Although the cheek had ulcerated, the ulcer, not being malignant,

had healed. The rapidity and completeness of recovery encourage removal of the largest growths in this region."

The condition before and after operation is well represented in the plate drawn from photographs by Diego Perez Romero of Huelva.

### CONGENITAL COCCYGEAL TUMOURS.

Mr Jonathan Hutchinson writes as follows on congenital coccygeal tumours, in his "Illustrations of Clinical Surgery," 1888, vol. ii. p. 35:—"Infants are occasionally born with tumours in the neighbourhood of the coccyx, which have nothing in common with spina bifida, and have no connection whatever with the theca of the spine. They are, in fact, placed much lower down than the usual position of spina bifida. The latter almost always affects the upper part of the sacrum, whilst the tumours, of which I now speak, originate between the coccyx and rectum, and bulging backwards displace and surround these structures. There is a strong superficial resemblance, however, between a large spina bifida and a large coccygeal tumour, and mistakes in diagnosis leading to errors in practice have resulted."

Mr Hutchinson gives a perfect clinical picture of these tumours in describing the only case which had come under his care at the London Hospital.

I cannot do better than quote the following passage, which might have been written as descriptive of the cases I have to bring forward:—"The tumour was as large as the child's head, and overhung the anus, dragging down the bowel. It presented some shallow depressions on its surface in proof of a certain degree of lobulation, and though placed almost exactly in the middle line its growth was rather greater on the right than left. It involved both buttocks. Its circumference was fifteen inches, and from the anus over the top of the tumour to the first vertebral spine, which could be distinguished, was a length of ten inches. It felt firm, but with fluctuation in certain parts. The skin over it was thin in the middle, and adhered closely, but at its base it was loose. When the finger was passed into the bowel, a soft solid mass was felt surrounding the rectum above and on the sides. The tuber ischii was easily felt on the left side, but not on the right. The coccyx could not be distinguished, nor the sacrum reached. During the child's life we had frequently discussed the propriety of removing the mass, and after its death I was especially interested in ascertaining whether an operation would have been practicable. By curved incisions on each side, it was easy to reflect flaps of skin which would have covered the wound. On approaching the spine the growth was found adherent to the bones, and not wishing to disturb its relations I cut through the sacrum at its lowest part, and found afterwards that

the coccyx and part of sacrum were embedded between lobes of the tumour. One large mass overlaid the sacrum above, another projected into the pelvis between the bowel and the bone, and filled the sacral hollow. This lobe, as large as an infant's fist, was covered with peritoneum, and, although with care I think it might have been dissected out, it is not probable that such would have been the result in an operation. Nearly six inches of the rectum, much displaced downwards, were embedded in the tumour. The adhesions to the bowel were only loose, and might easily have been separated. The removal of the tumour during life would have required a prolonged and careful dissection, and would probably have been attended by much loss of blood. In all probability it would have resulted in a large opening into the peritoneal cavity, and a long tract of the bowel would have been exposed. The wound left would have been, in proportion to the infant's body, an enormous one, and the shock would probably have been very severe. Still there would have been nothing encountered which wholly precluded the chance of recovery, and the tumour might have been taken away entire."

The following cases show that Mr Hutchinson's conclusion was correct.

CASE III. — *Female child born with coccygeal tumour ; skin ulcerated over the lower part of growth ; complete excision performed at three months of age ; adhesions to gluteal fascia, rectum, and coccyx ; cure.*

A female child, three months of age, was brought to Huelva for treatment of a congenital tumour. The mother stated that at the birth of the child the tumour was much smaller than at the date of examination. The size and position of the tumour are clearly shown in the first photograph. The growth was situated to the right of the sacro-coccygeal region, and the skin had lately ulcerated over its lower part. In view of the rapid increase attained in three months, I decided to operate at once.

On 21st April 1888, the child being under equal parts of chloroform and ether, an incision was made over the top of the tumour. The skin was easily dissected off on both sides ; but deeper down the growth was intimately attached to the rectum, and on freeing this connection, about an inch of the bowel lay bare in the bottom of the wound. On further dissection upwards the main origin of the tumour was found to be from the under surface of the tip of the coccyx, where some large vessels ran in through a pedicular attachment. On ligation of those vessels the mass was easily removed, and

there was no further bleeding. A few points of suture were passed through the skin flaps. A drainage tube was introduced at the lower angle of the wound, and a dry mercurial absorbent dressing applied. The infant was then rolled in hot flannels and given back to the mother. About half an hour after the operation the child took the breast freely. The large wound left healed slowly, and the tip of the coccyx sloughed away. Six weeks after the operation the wound was healed, and the child in perfect health. The second photograph was then taken.

CASE IV.—*Female child born with coccygeal tumour ; skin over tumour thin and distended ; complete excision performed at two and a half months of age ; adhesions vascular and extensive ; cure.*

On 6th July 1888, under equal parts of chloroform and ether, I removed the tumour represented in the adjacent photograph from a female infant of two and a half months. There was nothing of note in the family history, and the child, apart from the tumour, was healthy. The skin over the growth was very thin, I therefore pinched up a little bit over the centre of the mass, and transfixing this piece, made an opening through which a grooved director was insinuated upwards between the skin and the tumour. A knife running in the groove easily cut the skin without injuring the capsule of the growth, which at

this part was very delicate. In the same way the incision was extended downwards. The skin was then peeled off the tumour over its outer aspect with considerable ease, but the dissection on the inner or left side was much more difficult, owing to intimate adhesions with the deep fascia of this side. These adhesions were very vascular. I therefore applied pressure forceps before cutting, and thus gradually worked down along the capsule of the growth, without very much loss of blood. After freeing both sides, I had to dissect away the growth carefully from the rectum from below upwards, an assistant placed his little finger in the bowel, and thus facilitated this part of the dissection. Then after ligaturing the attachment to the coccyx, the tumour was removed entire, leaving a very large cavity, at the bottom of which the rectum lay exposed. A few sutures were put in after removing a narrow strip from the right flap, which was very redundant. A drainage tube was brought out at the upper angle of the incision. Some strips of plaster and a compress completed the dressing. The child made a good recovery.

In both of the cases I have recorded the patient was a female child, and the fact of the preponderance of this sex in cases hitherto reported requires consideration. My first case was operated at three months of age. The tumour had been already punctured by another surgeon with no good result.

On the contrary, ulceration of the skin over the tumour began at the seat of puncture.

The second child, only two and a half months, was perhaps young enough for such an operation, but the skin over the tumour in this case was so thin and almost translucent that the greatest care could not long have prevented ulceration.

These tumours demand complete excision. Any other treatment must be worse than useless. A year has now elapsed since the first case was operated, and nine months since the second. Both of the children are thriving, and there is no appearance of any recurrence of the growth.

Microscopic anatomy of these tumours:—The tumour from Mr J. Hutchinson's case was examined independently by Dr S. Mackenzie and Mr Doran. Dr Mackenzie's report is as follows:—"The growth appears to be a cylinder-cell, epithelial cancer, taking its origin from some cylindrical-celled organ, which, from its situation, would probably be some part of the intestine, as the rectum, or the ovary. The growth shows a tendency to revert from a pure columnar to a spherical epithelium." Mr Doran inclines to regard the tumour as a cystic sarcoma rather than cancer.

Mr J. Hutchinson, criticises these reports as follows:—

"With the greatest possible respect for the results of histological examination, which my friends have so kindly placed at my disposal, I cannot help

feeling some doubt whether the growth in this case would have followed the course, either of sarcoma or carcinoma. There was no evidence of tendency to infect either the glandular system or the viscera, and could it have been safely removed, it is, perhaps, not improbable that the child would have remained without recurrence. The facts are, however, but very scanty as yet on which to base such an opinion. We know neither the history nor the results of microscopic examination in similar cases. It is, however, not common for congenital tumours to grow malignant in their course.

As regards treatment, we ought, I think, to assume that these tumours are innocent, and if their removal by excision appear practicable, it should be attempted. It may be a question of some importance as to the age at which the operation should be performed, and in deciding this the surgeon will be guided by the state of health of the infant. If the health be well kept up, it will be better to wait awhile, unless, indeed, the tumour be growing." The cases I have cited furnish the proof required, and show the accuracy and completeness of Mr Hutchinson's deductions. Various theories have been suggested as to the origin of these tumours. Luschka suggested that the gland he discovered might be the seat of congenital tumours; and this has long been a favourite theory. But it seems to have been reserved for Mr Bland Sutton to find the true explanation in the great law of evolution.

In the abstract I insert, he applies this law to the elucidation of these congenital coccygeal tumours.

Mr Sutton ("Evolution in Pathology") writes as follows on tubulo-dermoids:—"An obsolete canal' is a term which I apply to a canal or duct which, in the ancestors of modern vertebrata, was functional, but appears in the embryos of existing forms in obedience to the laws of heredity. In the ordinary course of development many of these canals disappear, but some persist in a rudimentary condition. All the obsolete canals which are to be considered in connection with dermoids were associated with the primitive alimentary canal. Assuming that the central canal of the cord and certain passages in the brain represent disused sections of the primitive gut, it offers an explanation of many curious congenital tumours, and throws light on certain curious ducts and passages occurring in the vertebrate embryo. . . . The dermoids which arise in connection with obsolete canals are usually complex, and are of three kinds—(1) dermoid cysts; (2) dermoid tumours; (3) thyroid-dermoids or congenital adenomata. . . . The third group, congenital adenomata, occurs only in connection with these passages. I term them thyroid-dermoids, because in their histological characters they resemble, in a suggestive manner, the thyroid body. These tumours have been variously described as carcinoma, cystic sarcoma, adenoma, &c. They present easily recognisable characters—(1) They arise in obsolete sections of

the gut; (2) resemble structurally the thyroid body; (3) are frequently associated with striped or unstriped muscle fibre; and (4) are usually congenital. The most typical specimens occur in the neighbourhood of the coccyx, in the tongue, and in the neck. The tumours to which the term thyroid-dermoid is applicable in the neighbourhood of the coccyx are those congenital sacro-coccygeal tumours which lie anterior to the coccyx and sacrum, and, as a rule, below the levator ani muscle.

The tumours present very definite characters, and are sure to attract attention on account of their large size. Such large tumours are incompatible with life, but cases have been recorded where infants have survived the removal of somewhat smaller tumours. The histological features of these tumours are such as would be expected from the dilatation and aberrant growth of a piece of gut lined with cubical or columnar epithelium, and containing crypts and glandular recesses lined with similar epithelium, for they are made of cysts and duct-like passages lined with cubical epithelium. The cysts are held together by richly cellular connective tissue. The cystic spaces contain ropy mucus. A substance resembling hyaline cartilage is occasionally present in these tumours. In rarer specimens, solitary follicles, Lieberkühn's recesses, and unstriped muscle fibre have been detected."

Dr Alexander Bruce of Edinburgh kindly undertook the examination of the tumours from my cases.

Sections from the first case were frozen and cut with the Bruce microtome, then stained with hæmatoxylin, and counterstained with eosin.

“Fig. 1 shows one of the cystic cavities filled with granular material, probably mucin, in which small nuclei can be recognised. It is lined with an atrophied epithelial membrane (see fig. 2), external to which is a layer of non-striated muscle, and an outer connective tissue coat with fully formed blood vessels, arteries, and veins.

Fig. 2 (drawn from another part of the same section) shows a recess from one of the cysts. It is lined with an epithelium, the part represented being composed of atrophied cells, irregularly disposed. (In another part of the section the epithelium had a distinctly columnar arrangement.) The muscular coat external to this is very thick (compare fig. 4), and the fibres are cut transversely. The connective tissue adventitia external to this is very well seen. The nuclei are oval, and comparatively numerous, and the rest of the cell fibrillated, the fibrillæ being very close together.

Fig. 3 shows one of the cysts from case 2 stained with hæmatoxylin. The cavity was filled with a soft friable granular material, sparsely studded with nuclei, which took the hæmatoxylin stain deeply. It was lined with an epithelium composed of several layers of irregularly shaped cells, none of which had a distinctly columnar form. The muscular layer outside is also well developed (see fig. 4), and there

was a body of connective tissue, not quite so loose in its meshes as in fig. 1.

Fig. 4 (H.P. of part of fig. 3) shows the granular mucin in the cavity of the cyst, and the stratified epithelium, of which only the nuclei have been adequately represented in the drawing. Outside this we have a layer of non-striated muscle. No distinct adventitia is present.

There were other smaller cysts in the tumour lined by a distinctly columnar epithelium.

There were also irregular bands, composed solely of non-striated muscle, passing irregularly through the tumour, apparently unassociated with epithelium."

Dr Bruce's report gives valuable support to Mr Bland Sutton's theory, and furnishes the microscopic examination which Mr J. Hutchinson desiderated.

The tumours referred to in this essay have been placed in Dr Bruce's pathological museum of the Royal Infirmary.

It hardly requires to be explained that the cases recorded in this thesis are selected from general practice.

The desire to contribute something to the elucidation of problems which occupy the attention of the Faculty to-day has determined the selection.

The hope of giving practical effect to the highest aims of the profession prompted the work undertaken.

In this hope the tale has been preserved, and is now respectfully submitted to the authorities of the University who gave the writer his commission and sent him into the field.

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