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ERYTHEMA INDURATUM (BAZIN)

being

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By

J. N. McLAUGHLIN,

M.B., Ch.B.



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ERYTHEMA INDURATUM (BAZIN).

It has been my good fortune, during my term of residence in the Royal Infirmary, Edinburgh, as House Surgeon, to have come across two examples of the somewhat rare and interesting condition known as "Erythema Induratum" or "Erythema Induré des Scrofuleux".

The condition was first described by Dr Bazin of Paris in the year 1861 in his book entitled "Leçons sur la Scrofule". Here under the heading of "Scrofulides Erythémateuses" (page 146) he gives his original description of the Disease, a description so accurate in every detail and so little affected by more recent research and improved methods of investigation as to earn for the condition the further title of "Bazin's Disease".

This description I will give in his own words, and is as follows:- "L'érythème induré, de nature scrofuleux, n'est pas rare; il se caractérise par des plaques rouges, indurées, sur lesquelles le doigt appliqué fait momentanément disparaître la rougeur, qui ne tarde pas à reparaître au bout de quelques instants. On sent à la peau et sous la peau une induration qui s'enfonce plus ou moins profondément dans le tissu cellulaire sous-cutané.

La rougeur, plus ou moins foncée, assez souvent violacée, plus marquée au centre, se fond insensiblement sur le circonférence avec la couleur normale de la peau. Il n'y a sur ces plaques aucun prurit; la pression avec le doigt y est à peine douloureux. Cette affection s'observe communément sur les jambes, plus souvent peut-être chez les filles que chez les garçons. Je l'ai souvent rencontrée sur les jambes des jeunes blanchisseuses, chez les jeunes filles offrant tous les attributs de la fraîcheur et de l' embonpoint scrofuleux. Son siège de prédilection est la partie externe et inférieure de la jambe. On la voit quelquefois aussi siéger un peu au-dessus du talon, le long du tendon d'Achille. Enfin on peut la remarquer encore sur la face, et je l'ai vue, sur cette région alterner avec l'ophthalmie scrofuleux."

From this full description it is seen that the disease is characterised by dark-red coloured plaques situated most commonly on the outer and lower part of the legs. There is no itching, only slight pain on pressure, but an induration sinking more or less deeply into the subcutaneous tissue can be felt on palpation. It is most commonly found on the legs of young washerwomen and in young girls, offering all the attributes of the "fraîcheur et embonpoint scrofuleux".

In the following year in his "Leçons sur les Affections Génériques de la Peau" he sums up its characteristics while also differentiating it from Erythema Nodosum - a condition somewhat similar in appearance. Here he says: "Enfin l'érythème induré des scrofuleux est caractérisé par des larges plaques dont la coloration est la même sur tous les points, l'induration souscutanée sensiblement égale et qui ne donne naissance à aucune douleur quand on les presse entre les doigts, tandis que l'érythème noueux, affection avec laquelle on pouvait la confondre, présente successivement toutes les nuances de l'ecchymose, et est douloureux à la pression. Enfin, l'érythème noueux ne persiste pas au delà de dix-huit à vingt jours tandis que l'érythème induré se perpétue pendant les mois" (- page 73).

It is thus seen that the principal points of difference which he draws between these two conditions are firstly, the play of colours to be observed in Erythema Nodosum as well as the acute pain elicited on palpation; and secondly, the fact that Erythema Nodosum lasts only from about eighteen to twenty days while Erythema Induratum lasts for months.

The first case on record is the one described by Dr Bazin in his book entitled "Leçons sur la scrofulé" published in 1861. The patient was a washerwoman in

whom the condition was first observed in 1858. It was then of some six months' duration. The lesions which were on the legs were not ulcerated, were not painful on palpation and did not show a play of colours as in Erythema Nodosum. She was taken into hospital for six weeks, treated with Tisane of Hop and the syrup of Iodide of Iron internally; starch baths with sulphur baths later, locally, but was discharged with little apparent improvement (page 501).

In 1860 Bazin in his book - "Leçons sur les Affections Cutanées de Nature Arthritiques et Dartreuses" - also refers to the condition, again differentiating it from Erythema Nodosum. He says:- "Scrofulous Erythema manifests itself in people with a soft constitution and lymphatic temperament, characterised by a plaque, usually single, of a vinous red colour larger than the taches observed in Erythema Nodosum, situated on the anterior or external parts of the legs, not painful, constituted by a uniform induration which is limited to the skin and does not extend to the subcutaneous connective tissue."

For the next twenty-five years very little was added to the literature on the subject; indeed, it seems as if the disease was forgotten or continued to be confused in spite of Dr Bazin's discovery, with Erythema Nodosum and syphilitic or tuberculous conditions of the skin.

In the year 1893 Mr Jonathan Hutchinson, in the "Medical Press and Circular" (for Wed. Oct. 18) re-introduces the subject, and in his numerous books and writings of later years describes a large number of cases occurring in the course of his extensive hospital and private practice. In this paper, he refers to the main points of the disease as mentioned by Bazin, but lays special importance on the presence of small hard nodules found under the skin of the legs of people affected with the disease. Ulceration of the plaques, Hutchinson considers a most important point in the condition, though its occurrence was considered of no importance by Bazin. That ulceration does very often occur is now fully recognised, though all do not, like Hutchinson, consider it a characteristic point in the disease.

The ulcers are very like syphilitic ones and are often treated as such. Hutchinson refers to one case of the disease in a lady in whom the ulcers were treated with mercury to its full extent but with only slight improvement. Potassium Iodide was then tried, with the result that the condition was made considerably worse. The ulcers though usually found between the knee and ankle, may, however, be situated anywhere on the body - a fact causing confusion with syphilitic ulcers to be all the more likely.

In Jonathan Hutchinson's book on "Syphilis" he refers to a case of a woman with Erythema Induratum whom he first saw in 1885. This case, several years later, was still under treatment.

In his "Archives of Surgery" 1894, Vol.I., p.58, the same author refers to a case of the disease in a girl who had ulcers, very like syphilitic ones on only one leg. There was no history of syphilis. His conclusion was that "the condition assumed depended upon feebleness of the circulation and individual peculiarity, not upon specific taint".

In Vol. V. of his Archives, p.31, this author says that he is quite certain that the local process (of ulceration) is infective - one ulcer becoming the parent of others around it. - yet the escape of the inguinal glands from inflammation or enlargement is an invariable and noteworthy fact.

When the condition appears on other parts of the body than the legs, it assumes the form of lichenoid papules and is never attended with the subcutaneous nodules, so characteristic of the condition when found on the legs.

Hutchinson mentions having seen a case where the lesions implicated the face. In eight other cases described, seven occurred in girls, which shows how much commoner the condition is in girls than in boys.

Some of the conclusions he draws from these cases are as follows. The most typical examples of this disease occur in young persons, more frequently in girls, but they may occur at any age and in either sex; the legs are the commonest site, although the lesions may occur anywhere on the body; the subjects very often have scrofulous antecedants; while many cases are by no means typical examples.

In this same volume of his "Archives of Surgery" Hutchinson describes what he considers a remarkable case of the disease; this case he also refers to in his book on "Syphilis" (1887, p.353). The patient was an adult woman, aet 38 years, healthy in appearance, who had the condition of "Erythema Induratum" on both legs from a little below the knee to the ankle on their posterior aspect. She had also on the back of both arms, just above her elbows, a group of slightly indurated dusky spots. There was, however, no ulceration on the legs or arms. There were numerous enlarged glands in the neck, while she showed a great liability to re-attacks of pustular ophthalmia. This case was under treatment at various times for over eight years but the condition still persisted. When a girl she had been threatened with phthisis, from which a brother and sister died. It is thus seen that there was a very tuberculous history while the

phyctenulae around cornea were indicative of the "scrofulous habit". That the condition was not syphilitic is shown by the fact that the administration of Potassium Iodide considerably aggravated the condition. Mercury, especially in the form of the yellow oxide ointment with Iodol, always improved the lesions but did not cure them. The remarkable symmetry of the lesions also was against syphilis, of which no history was obtainable.

That a syphilitic condition of the legs can very closely simulate a case of Bazin's Disease, and from which it can only be differentiated by the administration of anti-syphilitic drugs, is clearly shown in a case published by Hutchinson in Vol. V. of his "Archives of Surgery" (p.284). The patient was a young officer, with ulcerated plaques on his legs between the knee and ankle. Previously he had a rash on his body with the secondary manifestations of syphilis. On the administration of anti-syphilitic remedies the condition of the legs rapidly cleared up. Regarding the case, Hutchinson says:- "When in a case of syphilis the patient has the legs covered with ulcers which begin in the subcutaneous tissues and not on the skin and which are confined to the legs, we have presented a resemblance to Bazin's Malady which certainly should not escape

notice. The cases differ only from the scrofulous forms of Bazin's Disease in that they are easily and definitely cured by specific treatment."

In the "Smaller Atlas of Clinical Illustrations" (Hutchinson) there are two illustrations of the condition - Plates CIII. and CIX. The first plate is that of a boy whose condition is described in "Archives of Surgery", Vol. V., p.107, and of whose legs there is also a portrait in the London Hospital Museum. This boy, aet 12, had his legs covered with scars and superficial ulcers. There was no history of syphilis. The condition was very intractable under treatment but finally yielded to exercise, tonics, sea-air and local applications of mercury.

The second plate is that of the case described in the "Archives of Surgery", Vol. V., p.35. A portrait of the condition was also published by Colcott Fox in the "Dermatological Journal", Aug.1893. The patient was a girl of 13 years who had the dusky erythema and ulceration on the legs for four months. There was a definite history of scrofula but no reason to suspect syphilis.

In the "Archives of Surgery", Vol.VI., 1895, p.8, Hutchinson says:- "Ulcers are by far the most conspicuous and most important feature" of the disease. Similar indurations may also be met with in

secondary syphilis and sometimes in diabetes.

In the "Archives of Surgery" Vol.VII,, 1896, p.196. Hutchinson refers to a case of a woman with the condition for 15 years and was still not cured. The legs were covered with scars and she still developed subcutaneous nodules of the characteristic kind which break down, forming ulcers. This woman developed scirrhus of the mamma which had to be excised. The case shows a combination of Cancer and a scrofulous or tuberculous condition - a fact not said to occur by the older pathologists.

A typical example of the disease in a girl of 16 years is mentioned by Hutchinson in the "Archives of Surgery" Vol.IX., 1898, p.230. The patient - "a blooming girl of florid complexion and fair skin" had a family history of scrofula and "lung disease". She showed well a condition which he considered strong corroborative evidence of the existence of "Erythema Induratum", viz. "Cacatrophia Folliculorum", in which you get little hard livid lichenoid papules on the backs of the arms just above the elbows - a scrofulous form of Lichen.

A second case was that of a woman, aet.26, with a tuberculous family history. She had typical erythema induratum nodules on one leg, and superficial lupus on the other which demonstrates the possibility

of erythema induratum, being like lupus of a tuberculous nature.

A third case illustrates the condition in a man aged 53 years, who had the peculiarity of being unable to digest fats from boyhood - a fact often noticed in persons of a tuberculous diathesis. He had been operated upon for fistula in ano, but beyond this there was no definite history of tuberculosis or scrofula. He never had syphilis.

There were six indurated plaques situated on different parts of the body, the largest of which being about the size of the palm of one's hand, was soft towards its centre and threatening to ulcerate. None of the lesions ever ulcerated, a point fitting in well with Bazin's original description. One lesion was situated behind the hip, two were on the thigh and two on the left leg.

In Vol.X. of the "Archives" p.71, Hutchinson describes a case in which there was a very pronounced history of tuberculosis. The patient, a lady of 35 years, had numerous patches of induration involving the skin and subcutaneous connective tissue of the legs, some of the patches being on the point of ulceration. There were scars on both sides of the neck, one on her cheek, and one on chest; a finger had been amputated for "bone disease" at the age of

15 years; she had ulcers on her cornea at the age of 12 years, while phthisis had been previously diagnosed as present at the apices of both lungs. The indurated plaques on legs always became worse during the winter, a point which is very noticeable in this disease. Acting on this observation, Hutchinson ordered the patient abroad, from which she returned well in 14 months.

Throughout this large amount of literature on "Erythema Induratum" contributed by Hutchinson, it will be seen that he lays special stress on the occurrence of ulceration in the areas of induration, considering it, in fact, to be one of the most characteristic signs of the disease. He also demonstrates the great frequency of the condition in patients who are not merely scrofulous, but who are distinctly tuberculous.

Another investigator who has gone deeply into the condition is Dr Colcott Fox; he, in conjunction with Jonathan Hutchinson, was the first to describe the ulceration as occurring in the indurated plaques, and to recognise it as an important stage of the disease.

In the "British Journal of Dermatology" for August 1893, Fox describes nine cases of "Erythema Induratum". The chief points in these cases were, firstly, that

the subcutaneous nodules which vary in size from a pea to a hazel-nut, were practically painless to palpation, and tended to involute completely or suppurate, after involving the skin, with necrosis of occasionally the entire nodule; leaving a punched out ulcer, closely resembling a syphilitic one. This necrosis of the nodules, he considers to be a natural termination, and not due to injury. The patients were below the standard in health, stout and flabby or pallid and ill-grown. A poor circulation is a most prominent feature in these cases. The more common occurrence of the lesions in winter is also pointed out by Fox.

As regards the site of the nodules, Fox mentions two cases under his observation, where the lesions were on the front of the legs - in the position commonly occupied by "Erythema Nodosum".

Colcott Fox also mentions a case which was brought before the weekly meeting of the Hospital, St. Louis, on 17th Jan. 1889, by Dr Feulard. The patient was a girl of 15 years, of a "distinctly scrofulous temperament", but no history of syphilis. On the antero-lateral aspect of the right leg there were ill-defined, livid-coloured patches, desquamating on the surface, and painless on palpation. Three or four small nodules about the size of a pea could be

felt under the skin. There were similar plaques and nodules to be felt on the left leg. In June of the same year the case was again shown; the erythema had largely disappeared but the indurated nodules still remained.

Crocher in his "Diseases of the Skin" (2nd Ed.) p.75, also reports a typical case of "Erythema Induratum".

In the "Dublin Journal of Medical Science" (May 1894) Dr R. Glasgow Patteson of St. Vincent Hospital, Dublin, describes three cases of the disease, two in girls aet 18 years, and the other in a girl of 14 years. He enters fully into the consideration of the main facts of the clinical and natural history of the condition. As regards ulceration, the feature selected by Hutchinson as characteristic, this is considered by Pattison as really the least specific feature of the disease, and certainly not an essential for diagnosis. The chief points on which he lays stress are:- "The slow and painless evolution of subcutaneous nodules, situated most frequently and usually symmetrically, on the backs of the legs below the level of the calf and running a chronic course, which ends either in spontaneous resolution or in the undermining and violaceous discolouration of the overlying skin followed by the formation of irregular shallow

and unhealthy ulcers".

The disease is distinct from scrofuloderma and lupus, while it differs from "Erythema Nodosum" in the absence of febrile or rheumatic manifestations, in the slowness of evolution, and in its site of predilection. From syphilis it differs in being a local affection, mainly confined to the legs; in the absence of pain and of gummatous degeneration, in the absence of general constitutional symptoms and in its refractoriness to specific treatment. Another point to which he draws attention is that at some period during the course of the disease, it is in most cases associated with tubercular enlargement of the lymph glands.

In the "British Journal of Dermatology", London, 1893, Vol. V. (p.338) Patteson records a case of "Erythema Induratum" in a girl. This patient had the lesions, which were ulcerated, on the front of both legs. The area of skin around the ulcers was dark and livid in colour, painless to touch.

There was no enlargement of inguinal or other glands, and no history of syphilis.

Later she developed enlarge glands in the neck which were presumably tuberculous. The condition on legs was not benefited by anti-syphilitic remedies,

but improved under tonics, cod liver oil, etc.

In the "Clinical Journal" 1898-99, Vol.13, p.184 Dr James Galloway of Charing-Cross Hospital, treats of a case of the disease and enters very fully into the Histology and Aetiology which I will refer to later.

This case was peculiar in that the patient, a woman aged 35 years, had the lesions at different times, all over her body; one lesion she had on her side for over three years. As regards the indurated areas, he says: "the most intensely red and oedematous parts break down a little in the centre, they simply necrose without any obvious suppuration after this event the oedema seems partly to escape and partly to be absorbed, the whole lesion gradually vanishes leaving only two or more comparatively superficial scars".

There was no history of syphilis to be discovered nor any evidence of it. Numerous scars were present in the neck from the suppuration of old tuberculous glands, while the right elbow joint was ankylosed, the result of an old arthritis, most probably of a tubercular nature.

A valuable addition to the literature on the subject is given by Dr Andry of Toulouse ("Ann. de Dermat. et de syph.", March 1888, Vol.IX. p.209) who enters very fully into the histology and aetiology

of the disease, an account of which, along with his experiments, will be mentioned later.

An interesting case of the disease in a man is mentioned by Dr Charles T. Dade of New York (Journal of Cutaneous Diseases, 1899, p.304). This patient who was 42 years of age, well-built, but somewhat anaemic in appearance, was 165 lbs. in weight. He was always subject to cold feet and hands and never fond of out-door exercise. There was, as usual, no family history of syphilis to be obtained nor of tuberculosis, except on the wife's side where two brothers and two uncles died of tuberculosis.

This, the third attack which the patient has had, began with two small nodules beneath the skin. When he came to Dr Dade's notice there were seven discrete round red plaques, varying in colour from a fairly bright red to dark red in the older and larger ones. The colour which was deepest at the centre faded away towards the circumference where it blended insensibly with the normal skin colour. A little desquamation was over the centre of some of the plaques. In still another important point does this case correspond very closely with Bazin's description of the disease, and that is, as regards ulceration. The lesions in this case never broke down at any time; resolution always occurring in the indurated areas.

The seasonal occurrence, so noticeable in many cases, is well illustrated in this case. The areas of induration appeared each autumn of the three preceding years, became considerably more pronounced during the winter, disappearing to a very great extent during the spring and summer months.

As is usually done in these cases, the patient was treated for syphilis and also for "Erythema Nodosum" - the two conditions most easily confused with Bazin's Malady, but with unfavourable results.

Dr Jas. C. Johnston of New York (Journal of Cutaneous Diseases, 1899, Vol.XVII.) reports a case of "Erythema Induratum" associated with "necrotic granuloma". The patient was a girl of 16 years, accustomed to much standing during the course of her employment. She appeared somewhat unhealthy and anaemic, while she had a coarse thick skin. She also displayed what he calls the classic symptoms of the disease, viz. cold, blue, oedematous hands and feet and a tendency to peripheral stasis with chilblains in the winter - a condition referred to by Galloway as the "Chilblain Circulation". The lesions were scattered on the exterior aspect of the legs. A few, in which the induration had reached and involved the epidermis of the skin, had become ulcerated.

The ulcers, which in this condition are painless,

are indolent and ragged; they discharge a thin and often blood-stained pus, the pus often escaping from a small opening which communicates with a large cavity beneath. These ulcers show but very little tendency to heal. Anti-syphilitic treatment, which was tried in this case on account of the suspicious character of the ulcers, only made the condition worse.

The granulomatous condition in this case was on the arms, and showed, like the lesions already mentioned, the tendency to improvement during the summer months.

According to this author 23 out of 40 cases of "Erythema Induratum" collected in literature, or 57.5%, showed evidences of scrofulosis either in the form of bone-disease, or as keratitis, enlarged lymphatic glands, etc.

Allbutt in his "System of Medicine" (Vol.VIII. p.802) refers to this disease, but expresses doubt in its relation to tuberculosis, no tubercle bacilli having ever been found to exist in the lesions.

He enters more deeply into its differential diagnosis from "Erythema Nodosum", Tertiary Syphilides and Tuberculous Ulceration of the skin of the legs. This I will refer to later.

A case which very closely simulated "Erythema Nodosum" is mentioned by W. Allen Jamison in his book

on "Diseases of the Skin" (p.118). The patient was a lady, aet 31, who had numerous subcutaneous nodules on both legs, which were painful on palpation and apparently thrombotic in nature.

The fact that the nodules were painful on pressure leads to the suspicion that the condition was really one of "Erythema Nodosum", but the chronicity of the condition and the absence of the characteristic play of colours seen in "Erythema Nodosum" led the author to conclude it was a case of "Bazin's Malady".

The condition, he says, is common in girls with feeble circulation, who are prone to cold extremities.

The lesions may be even found on the backs of the fingers, face or ears.

In the "British Medical Journal" of Feb. 4th, 1905, Dr Somerville of Glasgow reports a case of the disease where the patient had the characteristic indurated ulcerated areas on one leg only. The symmetry of the condition is a prominent feature of most cases recorded, although Hutchinson includes among his records at least two instances in which a similar limited manifestation of the disease existed. This patient was a girl of 11 years whose home was in the

Balkan States. The characteristic indurated nodules, with ulcers later, appeared when on her first visit to this country where the cold always made her feel uncomfortable. The condition improved and disappeared under treatment, but returned again in the same position after her arrival in this country, following a few years spent in her own land. Another point in which this case is remarkable is that the disease, after its return a second time, resisted the previously successful treatment and only improved on the application of high frequency currents, the use of which I will refer to later.

The first case of "Erythema Induratum" which I have to record is that of a girl, named Annie Taylor, aged 15 years, living in Leith, and employed as a house-helper to her mother. She first came under my notice on the 2nd March, 1908, when she was admitted to treatment in the Surgical Out-patient Département of the Edinburgh Royal Infirmary. She complained of "Sores on the legs".

History of Present Condition:

About two years ago the patient first suffered from "sores" on the back of both legs, which appeared

in the winter. The lesions, which ulcerated, healed, however, after about two months' treatment. From that until about six weeks ago she was entirely free from any trouble with the legs. At this time she began to have an uneasy feeling in both legs, but no actual pain. When she felt the back of her legs she noticed the skin somewhat hard and resistant in patches. Later an ulcer appeared on the back of the calf of the right leg, which has gradually got larger until it has reached its present dimensions (see photograph of case).

A few weeks after the appearance of this ulcer, another made its appearance in a similar position on the left leg; this ulcer, accompanied by another at a lower level, did not show the same tendency to rapid spreading. No pain was complained of in either leg.

As regards the previous health, she has never had any diseases beyond those common to childhood. She says she had always been quite healthy until some three years ago when she began to suffer from enlarged glands in the neck which necessitated her having three operations performed in the Sick Children's Hospital. This occurred the year before the leg condition first appeared.

She has a comfortable home with plenty good food,

but has to spend most of the day in the house performing her household duties.

There is no family history of tuberculosis or syphilis. Her father and mother are alive and well; her only sister died recently of pneumonia; she has no brothers.

Present Condition:

Patient is a well-formed and developed girl, appearing somewhat big for her age. She is flabby in appearance; her face is pale and anaemic, with numerous comedones and some acne pustules scattered about. In height she is about 5 ft.6 in. and weighs $8\frac{1}{2}$ stone.

The conjunctiva and mucous membrane of mouth etc. are pale and anaemic; occasionally she notices some oedema about her ankles, especially at night. On the right side of her neck there are three separate scars where glands have evidently been removed. On palpation numerous large glands can be felt, those under the angle of the jaw being matted together, and have been present since the time she underwent the operations. The glands along the sterno-mastoids on both sides are enlarged, having become considerably more prominent of late.

Condition of Legs: (See Photographs).

On the back of both legs there are about ten slightly depressed, glazed scars, which mark the position of the lesions during the first attack of the disease two years ago.

About the middle of this aspect of the legs there are a number of coloured areas varying in size from that of a threepenny piece to the one on the back of the right leg which is somewhat larger than a five-shilling piece. These areas vary in colour in their different parts; the centre is of a dark violaceous colour, while towards the circumference they get much lighter, blending finally with the normal skin colour. There is, however, no "play" of colours as seen in "Erythema Nodosum".

On palpation these coloured areas feel distinctly indurated, whilst here and there between these plaques, under the normal coloured skin, occasional small rounded pea-like indurated bodies can be felt; some of these have involved the overlying skin and then show as small round dark coloured areas as seen in photograph.

In the large plaque on the right leg is situated a ragged unhealthy looking ulcer measuring 2 by $2\frac{1}{2}$ inches. The margin is somewhat raised and indurated; it is not undermined but presents a somewhat punched

out appearance. The floor of the ulcer is made up of a moderate amount of dull-red, rather unhealthy looking granulations, bearing at the upper and inner angle a small yellowish slough. These granulations bleed very readily from slight injury. The discharge which is moderate in amount is not offensive in odour.

Below this ulcer are seen a few small plaques which show considerable desquamation.

On the left leg two ulcers, very much smaller in size, are to be seen, one being placed about $1\frac{1}{2}$ inches above the other. Their margins are also slightly raised and indurated, are circular in outline and punched out in appearance. In diameter they are about half an inch, while their floor is formed by a yellowish slough, covering scanty granulations. There is only a small amount of discharge, which is free from smell.

On microscopical examination of the discharge from the ulcer of the right leg, I found that the organisms present were mostly pseudo-diphtheroid bacilli; many of them showed marked bi-polar staining which made them closely resemble the ordinary diplococci. When found in groups they showed marked palisading.

I made cultures on Solidified Serum, which Dr Ritchie was kind enough to give me, and after 24

hours incubation obtained a good growth. The culture had a lemon-yellow tint, making it appear somewhat like one of staphylococcus aureus, while there was an occasional distinct little white colony scattered here and there through it. Microscopically the yellowish colonies proved to be micrococci, the white colonies being typical pseudo-diphtheroid bacilli.

I also stained and examined a film microscopically of the discharge from the ulcers of the left leg and found almost a pure colony of diplococci. A culture, made also on solidified serum, showed a growth after 24 hours incubation of the same slightly yellowish tint, but the individual colonies were smaller in size, while there were no dis-similar ones to be seen.

Microscopically these colonies were pure cultures of diplococci. (See stained slides).

I also, by means of subcutaneous infiltration of cocaine, removed a small piece of the lower and outer margin of the ulcer for microscopical examination. This piece of tissue I hardened in a 2% solution of Formalin in Methylated Spirits and through the kindness of Mr Wade of the Pathological Department, I was able to make stained sections for examination.

From these slides it will be seen that the tissue forming the base of the ulcer is of a simple inflammatory type, there being no giant-celled systems, or giant cells to be seen anywhere in the sections, as would be seen in a tuberculous ulcer. In the subcutaneous tissues there is a considerable infiltration of lymphocytes. What appears to be a slight degree of hyperplasia of the epithelium is seen on the margin. (see slides).

When this case was under observation and treatment I took the opportunity of trying to get the Calmette conjunctival reaction. The day following the instillation of the Tuberculin, there was a distinct conjunctivitis, especially of the lower eyelid and inner canthus, as well as on the eyeball below the level of the pupil. This I considered a distinct positive reaction, and showed that the patient was of a tuberculous tendency, if not actually tuberculous.

Treatment:

Patient was treated as an Out-patient for about a month, at the end of which time there was marked improvement, not only as regards the patient's health but also the local lesions on the legs.

After admission the ulcers were cleaned up by

means of the Hydrogen-Peroxide spray and dressed with sterile swabs wrung out of Boracic Lotion; the granulations began to look healthier, while the edges of the ulcers became less indurated and showed signs of closing in.

As regards the patient's general health, this improved greatly under cod-liver oil emulsion, tonics, and gentle exercise in the open air.

It was at this stage I was obliged to leave Edinburgh, but heard on enquiry, some months later, that the condition was still improving.

The second case which I have to report is an interesting one, and one which responds very closely to Bazin's original description in which he says the lesions never ulcerate.

This patient was a girl named Christina Robertson, aet 18, of the Grassmarket, Edinburgh, employed in the store-rooms of a draper's shop. She came under my notice when in Mr Logan Turner's wards of the Royal Infirmary in March 1908.

History:

About the beginning of that year she noticed for the first time on the back of both legs, some

three or four small discrete, rounded areas, which were of a dark reddish colour. These "spots" were not painful on pressure but caused a dull aching feeling of pain when she had been standing or walking for some time. As these areas were getting larger, she came to the Skin Department for advice and was admitted to Dr Norman Walker's ward where she was treated for a month; at the end of this time the areas on the legs had become much smaller and paler in colour. I was unable to obtain any record of her condition on admission to hospital at that time.

When in the Convalescent House, after leaving the Infirmary, she developed a Frontal Sinusitis which necessitated her return to Hospital. She was just convalescing from the operation when her case came under my notice.

She has never had any other serious illnesses. She has never had syphilis or tuberculosis in any form, nor is there any history to be obtained of it in her family. Her father and mother, two sisters and three brothers are alive and healthy.

Present Condition:

She is a well-developed girl, weighing 9 stone, somewhat anaemic in appearance, the skin of body being flabby and the face presenting numerous comedones.

The legs are well formed and the muscles well developed. The skin is pale and flabby in appearance (see photograph).

The left leg, at its middle part, presents five coloured indurated areas which vary in size from a shilling to almost that of a five shilling piece. Two of these small areas are situated on the front of the tibia, one larger one is on the outer aspect of the leg, just in front of a birth-mark which is well seen in photograph of case. Posteriorly and internally there is a well marked plaque which is just seen in the photograph.

Internally there is a smaller area of induration.

At the same level, the right leg is still more extensively involved, anteriorly the skin is not affected, but on the inner aspect a large plaque is present, showing within its circumference three small areas of pigmentation, deeper in colour than the surrounding part of the plaque and giving the appearance of the large area being composed by the coalition of the three smaller ones, which seems to have been probably the case. On the outer aspect there is another plaque present in front of which there is a depressed parchment-like scar.

In colour the plaques on both legs are of a light purplish-red tint, which is deepest in the centre and

fades away to the skin colour at the circumference. The large plaque on inner aspect of right leg presents a small amount of desquamation on its surface.

On palpation these coloured areas are practically painless; they are slightly depressed beneath the normal skin level, while at their edges an induration can be felt, which seems only to involve the skin and immediate subcutaneous tissue. This induration is not so marked as that to be felt in my first case.

The lesions in each case were confined entirely to the centre of both legs; no lesions were to be found on any other parts of the body. Since this patient, Christina Robertson, developed the first symptoms of Frontal Sinusitis, the condition of "Erythema Induratum" on her legs steadily became worse, showing the tendency for the disease to progress when the vitality of the patient is lowered from any cause.

As the indurated areas in this case did not ulcerate, I was unable to obtain any specimens of the tissues for examination.

I have been unable to come across any further examples of this disease, although I made enquiries in some of the large hospitals in New York, when there on a visit recently. In the hospitals of Yokohama and Shanghai I was unable to find even records of any cases, but in these latter cities the warmer weather

which prevails for most of the year would be sufficient to account for the absence of examples of the disease.

S U M M A R Y .

That "Erythema Induratum", or "Bazin's Malady" as it is called by Hutchinson, is not a very common disease is readily seen from the comparatively few cases recorded in literature during the fifty years which have elapsed since Dr Bazin's description of the condition as a definite disease.

Up to this time, and indeed in many instances even still, this obscure disease is confounded with Erythema Nodosum of rheumatic origin, or with syphilitic or tuberculous ulcerations of the skin; its confusion with a syphilitic condition is perhaps the commonest.

DIAGNOSIS:

In the Diagnosis of "Erythema Induratum" the chief points to rely upon are, firstly, the presence, in girls, of a scrofulous nature, of painless subcutaneous nodules on the back of both legs, which produce a dark violaceous colouration on the surface

when the superficial layers of the skin become involved. The area of skin thus affected, presents on palpation a feeling of induration which sinks more or less deeply into the subcutaneous tissue. These indurated areas are not painful on pressure, but often give rise to a feeling of uneasiness if the patient has been standing or walking a considerable amount.

Ulceration of these areas I do not consider an essential point in the disease. Dr Colcott Fox along with Mr Jonathan Hutchinson, as already seen, show the very close and important relation which it has to the condition, and it is considered by them to be a natural termination. Many cases, however, as is well illustrated in my second case - C.R. - never suffer from ulceration of the plaques, and this was also the case in all the examples of the condition seen by Dr Bazin himself. An injury to this indurated area, whose vitality is lower than the surrounding skin, may be the initial cause of the necrosis and ulceration. Jonathan Hutchinson himself even suggests an insect bite as a possible cause. Besnier suggests an injury.

The commonest site in which the condition is found is on the back of each leg about its middle, but observers have described it as occurring on almost any part of the body. Bazin says the seat of predilection

for the lesions is the external and inferior part of the legs, although he says: "It may be observed on the face, when it may alternate with scrofulous ophthalmia".

An important point in the recognition of the condition is the symmetry of the lesions, and Colcott Fox goes so far as to say that lesions, bearing the characters of "Erythema Induratum", which occur on one leg only, are very probably syphilitic in origin. This symmetry is well illustrated in both my cases.

As regards age, most cases occur between twelve and seventeen years, although cases may occur of the disease in persons much more mature in years. Fox mentions a case occurring in a person aged 48 years, and Hutchinson, one aged 54 years.

The general health of these patients is usually below the standard; the girls, who are by far the most subject to the disease, are stout and flabby, often pallid and ill-grown; or girls who, according to Bazin, are "plump and blooming", or as he describes them - girls offering all the attributes of the "fraicheur et embonpoint scrofuleux".

These girls are usually scrofulous, often distinctly tuberculous. As in both my cases, they usually are suffering from enlarged tubercular cervical glands. In many cases it is most probable there are

also enlarged glands in the thorax, about the roots of the lungs, or in the abdominal mesentery. Bazin, Hutchinson, Fox and others, mention the liability of these patients to suffer from granular ophthalmia, while according to Johnston, in the reference already mentioned, 57.5% of cases collected in literature showed evidence of scrofulosis in some form, bone disease, keratitis or enlarged glands.

The seasonal recurrence of the disease in some cases is very marked. In my first case - A.T. - the condition became much worse on the approach of the cold wintry weather. Dade, in the reference already given, mentions a case in which the nodules re-appeared during the autumn of three succeeding years. Hutchinson mentions a lady in whom the condition always disappeared when she visited a warmer climate.

DIFFERENTIAL DIAGNOSIS:

As I have mentioned, a syphilitic condition of the skin is the most easily confused with "Erythema Induratum", and regarding a correct diagnosis, Hutchinson says that it "will help as to treatment, as well as save us from the risk of causing unhappiness by blinding imputations". The majority of the cases recorded have in the beginning been treated as

syphilitic, while I am sure there are many cases at present, regarded as syphilitic, which are really examples of "Erythema Induratum". I have mentioned a purely syphilitic condition in a young officer which, according to Hutchinson, very closely simulated "Erythema Induratum", but this is rare.

From Syphilis the condition is readily recognised by the entire absence of any beneficial result to anti-syphilitic drugs, especially potassium Iodide; indeed these drugs usually make the condition worse. The comparative painlessness and the seasonal occurrence are also against syphilis; the great indolence of the affected areas and the absence of any syphilitic history also assist in the differential diagnosis.

From Scrofulo-tuberculous Gummata the indurated plaques differ in their greater chronicity, in their smaller size and in the fact that they are most commonly localised to the two legs.

From Erythema Nodosum the condition is recognised by the position of the lesions on the posterior aspect of the legs, in the tendency for the plaques to ulcerate, in the absence of the brilliant play of colours, and also in the marked chronicity which is such a troublesome factor in "Erythema Induratum".

Bazin himself draws attention, as already mentioned, to the plaque of "Erythema Nodosum" being smaller in size, much more painful to the touch and not involving the subcutaneous tissues. The febrile disturbances and other rheumatic manifestations so often associated with "Erythema Nodosum" are, of course, absent.

From Tuberculous Ulcers, the ulcers which may occur during the course of "Erythema Induratum" are distinguished by the absence of marginal undermining, and of tubercle bacilli or giant cells in the tissue; in the usual lack of any definite connection with actual tuberculous lesions elsewhere, and also in the position in which the ulcers are found.

HISTOLOGY AND AETIOLOGY:

In the description of my first case I mention my finding after a microscopical examination of the tissues composing the margin and floor of an ulcer which arose in a plaque of "Erythema Induratum". It will be seen there that I did not discover any sign of Tuberculosis or of syphilis. Jas. Galloway in the "Clinical Journal" (Vol.13, p.184, 1898-99) does refer to a few cases in which giant cells are said to

have been discovered, but regarding these, he says: "It must be recollected that the 'new formations' of all granulomata simulate each other to some extent and the presence of giant cells turns out to be not enough to allow of a definite diagnosis of tuberculosis."

Dr Andry of Toulouse (Ann. de Dermat. et de Syph. IX., p.209, March 1888) referring to the histology of this condition says he got no giant cells or other formations which we regard as histologically characteristic of tuberculosis, and to show still further the absence of any trace of tuberculosis in the lesions, he carried out a series of inoculation experiments in guinea-pigs. He injected these animals with fragments of the tissue, with negative results. Dr C. T. Dade (Journal, Cutaneous Diseases, p.304, 1899) also inoculated a guinea pig with fragments of the tissue but with a similar negative result when the animal was killed and examined six weeks later. Dr Galloway says that "these cases have been examined for the tubercle bacillus times without number, but always with failure".

Histologically, the disease, which begins in the lowest layers of the corium and subcutaneous fat, seems to be a kind of intense oedema, there is scarcely any inflammatory attraction of leucocytes or any proliferation of the mesoblastic cells. There is

considerable infiltration of the tissue with lymphocytes in many cases, while a dilatation of the lymphatic capillaries is described by Dr Andry and Dr Johnston. There is nothing about the lesions which one can ascribe to a localised phlebitis or thrombosis nor do they seem to have any relation to varicose veins.

As regards the Aetiology of this disease, there is still a great amount of doubt. The most plausible explanation is the one advanced by Dr Andry and which was supported by Professor Boeck of Christiania at the Edinburgh Meeting of the British Medical Association.

This hypothesis is that "Erythema Induratum" is a condition somewhat allied to Raynaud's Disease, which belongs to a group characterised by what has been called the "Chilblain Circulation". The vasomotor paralysis occurring at a weak portion of the skin, which is usually the centre of the calf of the legs, may be due to some obscure toxin circulating in the blood, and as the great majority of the patients suffer from some form of scrofula or tuberculosis, this toxin may arise in these tuberculous areas. Those cases in which any signs of tuberculosis are not recognisable may, however, have tuberculous glands

in the mediastinum or in other regions of the body equally inaccessible to examination. The ulceration of the affected areas may be due to necrosis following the prolonged action of this circulating toxin. This theory would explain also the occurrence of the lesions on other parts of the body besides the legs, such as the tip of the ears, in which position Hutchinson describes the occurrence of a characteristic indurated area, in one of his cases. The centre of the posterior aspect of the upper arm is another region on which plaques occasionally arise, and it seems to me probable that the less active circulation of the blood in these areas of the skin and subcutaneous tissues is responsible for the peculiar action of the circulating toxin.

The total inability of all observers to find the tubercle bacillus or other bacteria in the tissues of the lesions is also a strong point in favour of the circulating toxin theory.

The commencement of the induration as nodules under the skin, shows that it is not probably due to an exciting cause from without, but is more likely caused by some agent acting internally such as a toxin.

The explanation advanced by Hutchinson I do not consider so likely. In his Archives (Vol. IX. p. 230)

he suggests the possibility of tubercle bacilli passing over in some form, from the parent to the child at the time of conception, and that these bacilli remain latent until roused into activity by some local condition pertaining to the legs. If this were the case I would expect to find tubercle bacilli in the lesions as well as their histological effects, and as I have shown, these are entirely absent.

TREATMENT:

The treatment of this disease is eminently unsatisfactory. As Hutchinson says, no definite improvement takes place from confinement to bed, this great observer mentioning several cases in which it completely failed, improvement only taking place when the patients were allowed to walk about.

Rest, however, at the beginning of treatment, is very valuable, followed in a few days by gentle exercise in the open air. Attention to the general health seems to be the most important part of the treatment, and for this the ordinary tonics, wine, and cod-liver oil emulsions are the most valuable. Hutchinson mentions the use of small doses of opium as being useful, but I did not use it in either of my cases.

The great tendency for the disease to improve or disappear with the approach of summer shows the beneficial effect of warm weather, and in those cases in which a change to a warmer climate can be prescribed, it forms one of the most efficient item of treatment.

I have mentioned how Potassium Iodide and often the preparations of Mercury are without any beneficial result when administered internally, indeed, in most cases the condition is decidedly aggravated by such treatment.

In the local treatment of the areas which have gone on to necrosis and ulceration, application of mercury acted beneficially, however, in a few cases reported by Hutchinson; who also mentions obtaining good results by the application of caustics such as pure carbolic acid and silver nitrate. Such heroic treatment does not seem to have been resorted to by later authors.

In my first case in which there was ulceration on both legs, considerable improvement resulted from the daily spraying with peroxide of hydrogen, and the ordinary boracic lint dressing, but how much of this was due to the patient's improvement in general health it is impossible to say.

Dr Somerville of Glasgow (B.M.J. Feb.4th 1905) mentions a case in which he had complete and rapid

disappearance of the ulcerated lesions by the application of "High Frequency Currents". This patient sat, on various occasions, for about eight minutes on the "Auto-condensation couch" while her legs were treated by the "Spray effleuve and also with a flat glass electrode of high vacuum, connected with the top of the Oudin-Dean Resonator". The ulcers, after some forty-one such applications extending over three months, were completely healed, and had remained so three years later. I have not been able to find any later accounts of the disease in which this latter treatment has been used, and from the great success attending it in Dr Somerville's case, it is a remedy deserving a full trial in all hospitals in which it is possible.

As regards the un-ulcerated indurated areas, Hutchinson also obtained considerable benefit from the application of lotions or ointments containing mercury, although, as I have pointed out, earlier, the internal administration of this drug usually aggravates the condition.

Bazin himself used sulphur baths with only slight improvement resulting.

Excepting the mercury inunctions, the local treatment is practically useless, benefit only being derived by attention to the general health of the patient.

J. N. M. Campbell.

Royal Infirmary
Edinburgh.



"Erythema Induratum" Case II. Christina Robutar.

Royal Infirmary Edin.
1908.

J. N. D. Laughlin.



"Erythema Induratum."

Case I. Annie Taylor.