

The Etiology
of
Malignant Disease of the Uterus.

A. Foster,
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Blackburn.

April 30th 1897.

ancient vol i
1887
p. 6.

The definition here understood by malignant disease is that of Sir John Williams as given in his Harveian lectures: 'A new growth possessing malignant properties - i. e., it possesses the power of invading neighbouring tissues and of reproducing itself in other and distant parts.' This definition embraces all forms of malignant disease, including carcinoma, sarcoma and epithelioma.

To know the cause of all diseases is and always has been one of the chief aims of medical philosophy. The etiology of malignant disease of the uterus is at present beset with much haziness. This is the more unfortunate, in-as-much as this disease is not only of very common occurrence, but is the cause of much prolonged suffering. The great frequency

with which it is found, cannot help but strike one, and when we consider the variety of the uterine tissues, the complex menstrual function, the hypertrophic processes connected with pregnancy, and the accidents associated with labour, need we be surprised to find that there is a greater tendency to malignant disease in those organs which have been subjected to such irritation; for, that irritation is an important factor in its causation cannot be doubted when we consider that ^{it} is mainly among women who have borne children that it is most commonly found? This, as a favourite seat of malignant disease, is only what one might expect from analogy, for if we look at the most common seats of the disease, we find that they occur most often at some orifice where there is

some form of irritation, e. g., in the rectum, at the pyloric end of the stomach, or on the lip. The same fact applies to the os uteri.

Sir James Paget in the Morton Lecture says: "In all specific diseases, and in cancers more than any, parts are rendered apt to become the seats of diseases after injury, or after degeneracies, especially those produced by long-continued irritation". So that cancer is found increasing as age advances, and the tissues are undergoing senile changes. They are then not only less able to retain themselves but also less able to resist attacks ab extra. At first sight it would appear that as age advances and tissues deteriorate, new growths would be rare, but perhaps the explanation may be sought in the fact that, as remarked by Dr Coak, cancer depends in its origin

Brit. Med. Journal
vol. 19th 1897
p. 1093.

Lancet. Med. Journal
vol. XXV
1886
p. 268.

4.

on some cause which produces a local falling away of the resistance of the underlying tissues, combined it may be in many cases with a special vigour of the epithelial elements. Now this coincides with the following statement by Dr Woodhead:

"During the period at which cancer is most usually developed, the connective tissues have passed their prime. The epithelial tissues have also reached their zenith, and are now on the turn; but, as we know, they have still great vitality, sufficient, indeed, when diverted from the imperfect functional to a vegetative activity, to give rise to very large masses of imperfectly developed epithelial cells." He points out that cancer of those parts whose functions remain longer than the more specialised cells is developed later in life than those whose function is lost at a comparatively early age, take the skin and

Lancet
May 7th 1892
p. 1019.

uterus as examples.

What starts the new growth of certain tissues? What is the exciting cause of the cell proliferation? Is it what may be called a morbid vital energy, or "the abnormal play of forces generated within the body", as has been suggested?

Again, does cancer depend upon the presence of a microorganism, perhaps of a parasitic nature? This is a more fascinating explanation, but as yet bacteriological workers cannot agree, and the verdict can only yet be given as not proven.

Another explanation is based on Godwin's paper on nutritive centres. He suggests that all organs have nutritive centres in the shape of a few cells, which should disappear when their work is done, but which, if they persist,

ancient
mch 27th, 1897
p. 885.

may give rise to new growths.

Lastly there is Bohnheim's theory, which is that neoplastic growths may originate from sequestered fragments of the germinal matrix. This theory has found many supporters, and is quite as applicable to the uterus as it is to the breasts, numerous examples of the latter being quoted by Roger Williams. Fischel pointed out that in infants the os esternum and to some extent the portio beyond are lined by cylindrical epithelium, and Klotz showed how minute islets of these cells persisted in the adult among the stratified epithelium of the portio. Roger Williams thinks that it is to this source that the foreign epithelial elements in the portio must be ascribed, and he agrees with Ruge and Veit that most of the primary cancers of the

Brit. Med. Jour.
Oct 10, 1896
p. 1021.

portio originate from residual epithelial elements of this kind, rather than from the epidermoidal cells of the portio itself. Reige and Veit have also observed that cancer may originate from minute cyst-ovula Nabothi — which are probably sequestrations from the cervical glands.

These embryonic rudiments, whether disseminated through the connective tissue or accumulated in islands, appear to be the mother tissue of, at least, some of the carcinomata. The suitable seats for these rudiments would be at the natural orifices where there occur more or less irregular involution of the germinal folds, and the uterine cervix would be a suitable spot, for it is at the external os that the pavement epithelium of the uero-genital sinus meets the cylindrical epithelium

ut. Med.
Journ.
1896
p. 1022

of the Müllerian ducts.

The female sex is certainly more subject to cancer than the male, as is proven by Sir J. Y. Simpson's well-known statistics. This appears to be due to the frequent occurrence of cancer in the uterus and breast, one third of the total cases being found in the former.

Sir J. Y. Simpson's statistics showed during the years 1847 - 1861 :-
87348 fatal cases of cancer
61715 of these were women
25633 " " " " men.

Walsh's returns are :-
1200 fatal cases
879 of these were women.
321 " " " " men.

Ogle's returns on Regt General's reports for 1884
25515 fatal cases
15117 of these were women.
10398 " " " " men.

The proportion is lower in Ogle's

diseases of women p. 140

noted by with Depier enopause + its Disorders p. 241

Idem.

returns ($1\frac{1}{2}$ percent) than in those of Simpson and Walsh (2 $\frac{1}{2}$ percent.)

The direct exciting cause or the immediate etiology of malignant disease being unknown, I propose to pay special attention to the predisposing etiological factors, especially to that form — carcinoma — which occurs in the cervical portion of the uterus in about 98 percent of malignant disease of the uterus as a whole. Schroeder, however, in his revised estimate of the proportion of cervical cancer to that of the body gives 1 in 40.

Brit. Gyn. Journal
Feb 1896.

These predisposing causes are

- A. General.
- B. Local.

A. General.

- i. Age and its association with the menopause.
- ii. Heredity
- iii. Race
- iv. Locality
- v. 'Depreciation of the vital powers'. (Hart & Raubour)

B. Local.

- i. Parturition
- ii. Laceration of cervix uteri, with which is often associated
- iii. Erosions of external os.
- iv. Venereal disease.
- v. Coitus.

Age.

In this connection we may first study the following figures, collected by myself from various observers, as to the relation existing between age and the occurrence of carcinoma uteri.

Age for appearance of cancer of uterus

Age	Stations on cases	585	492	77	574	400	61	112	600	860	1460
	Stationary cases by distinct authors, 2270. Cited by Shaw & Babbin in Gynecology p. 472	cases, post mortem, of authors, 492	cases in Manchester Hospital, given by Sinclair in C. Albert's "Gynecology" p. 651	cases in Manchester Hospital, given by Sinclair in C. Albert's "Gynecology" p. 651	cases in Manchester Hospital, given by Sinclair in C. Albert's "Gynecology" p. 651	cases recently observed by Nangiagall in 1894. Quoted by Letkapior in 1896	cases at St. Baris Hosp. in 1894. Quoted by Letkapior in 1896	cases of Emma's The principles of Gynecology 1885. p. 511	cases of Boston at St. Baris Hosp. B. Jeacet "Cancer of uterus" p. 1.	cases of B. Jeacet at Cancer Hosp. "Cancer of uterus" p. 1.	cases recovered by Gordon Jeacet blood together
Under 20	087.c.	01.c.	07.p.c.	0	3.77.c.	3.77.c.	0 p.c.	8 p.c.	5 p.c.	3.6 p.c.	4.1 p.c.
Between 20+30	3.5	5 1/2 p.c.	4.4	0	3.77.c.	3.77.c.	0 p.c.	8 p.c.	5 p.c.	3.6 p.c.	4.1 p.c.
" 30+40	2.1	23 1/2	21.7	29.8	20.3	21.5	25	26.7	27.5	12	18.4
" 40+50	3.4	41 1/2	27	36.3	57.8	39.2	50	37.5	38.8	25.9	31.2
" 50+60	26.4	20 1/2	31.1	27.2	20.3	24.2	23.3	18.7	22.6	29.4	26.6
" 60+70	11.35	8	10.7	5.2	1.8	11.2	3.3	8.9	6	28.9	19.5
Over 70	3.6	1/2	4.8	0	1.8	11.2	3.3	8.9	6	28.9	19.5

On searching through these figures for the most common age at which this disease is found, one cannot help but be struck by its preponderance between the ages of 40 and 50. The only cases where this is not so are those of Baugh, Blau & Dittuick and those of Jesset, but in the former case it must be remembered that the ages were based on post mortem statistics and consequently came under the notice of the pathologist later than under that of the gynecologist. It seldom occurs before the 20th year, it then increases up to the decennium and ^{after} the climacteric decreases. The height of the cancer curve, which is reached about 45, coincides with the occurrence of the climacteric period, which will be seen to be much about the same age.

Tiet found in London cases 46.1 years

Change of Life
4th Edition
p. 20.

as average date of cessation.

Whitehead found in Manchester cases 47.5 years as the average date.

Robertson found

18.3 ceased to menstruate before 45.

59.5 " " " " from 47-50.

Why this prevalence of cancer during the climacteric or change of life and at or about the time of cessation.!

"The woman who has passed through the period of sexual life in perfect health, with her superfluous nerve force absorbed in child-bearing, is, when a change of life takes place, more liable to suffer from perverted nutrition as expressed by the development of some form of malignant disease." There is no doubt that in the great majority of cases it is a disease of that period of life in which there is instability of tissues, accompanied by loss of vitality.

Idem.

Physiology of diseases of women p. 185

Principles and practice of gynecology 2nd Ed. p. 34

This is so in the case of the uterus, and more so ^{here} than in other parts of the body, for the usual unstable equilibrium of the cell elements is now increased. At the climacteric the various systems have all more or less lost tone, especially the circulatory, nervous and glandular ones. The nutritive power is diverted from the uterus to other parts of the body. The endometrium begins to atrophy, the connective tissues get thinned, the uterine glands lessen in size and number, and the blood supply diminishes, thus fitting the uterus for the quiescent state in which it should remain in after life. Nutrition is now occupied in the removal of old structures and not in new formations, but is it not possible to conceive how if the nutritive power were misdirected, perhaps in an attempt to repair injury, and with the influence of heredity

playing a part, it might start a new growth?

It is at this time also that many women begin to suffer from neurotic troubles; they become depressed, irritable &c. This of itself, as we shall see later, cannot help but have some effect in the production of carcinoma uteri at this age.

Heredity

In considering the factor of heredity it is as well to note that inheritance of cancerous disease and inheritance of predisposition to cancerous disease are two vastly different things. Most recent observers do not consider that heredity has much influence in the causation of cancer. As far as our knowledge extends at present it certainly is not hereditary in the same sense that syphilis is; there is nothing which would correspond, for example, with the syphilitic taint. As a rule cancer shows no sign of development until after the birth of the progeny, and in connection with this fact Dr MacEwen in the discussion on Cancer in the Glasgow Pathological + Clinical Society asked as if expecting a negative reply, "Is it in accordance with the laws of heredity that a disease or an accidental feature only occurring

Glasg. Med. Jour.
vol XXV, 1886
p. 261

Glasg. Med. Journal. Vol XXVI. p. 37

in the parent after the birth of the progeny should manifest itself in the offspring?" Dr Coats replied in the affirmative remarking that it was possible for a man to beget a child before he became prematurely bald, and yet that child might have the tendency to premature baldness at the same time of life as the parent.

Another point against the view of heredity is that of unequal transmission.

Statistics in regard to the heredity of cancer cannot be said to be very reliable, for many of the class that suffer most from it know little or nothing of their family history, and often if they do know are loathe to tell it.

Roger Williams believes that it is undoubtedly hereditary and in support of it quotes several cases, one of which was that of a woman, aged 53, with uterine cancer, whose maternal grandmother, mother,

Lancet May 25th 1895 p. 1177.

mother's sister, and the patient's two sisters had all died of uterine cancer. He also states that in 142 cases of uterine cancer he found 28 with hereditary history, that is 19.7 per cent.

Schroeder says that judging from statistics the theory of hereditary descent does not seem feasible, though he thinks that we must allow some foundation for it. Placing the statistics of Sibley and Barker together he shows that heredity was proven only in 8.2 per cent.

Garrigues thinks it is hereditary "to some extent".

Baldy thinks that heredity has "a considerable influence" in its causation.

Pozzi says he has seen "several undeniable cases".

Snow says: "In the genesis of cancer no appreciable influence can be ascribed to heredity". Out of 295 cases of uterine cancer he found 37 with family history.

Brit. Med. Journ. May 12 1895 p. 1006.

Kemssen's Encyclopaedia 1895 Diseases of Sexual Organs p. 275

Quoted by Hart + Barbour "Gynecology" p. 471

Diseases Women p. 488.

American Book of Gynecology p. 365

Increase on Gynecology. New York 1892. Vol II p. 26. Cancer + the "new fascies" p. 16.

Proclivity of Women to Cancer p. 46.

Lancet
April 27th 1895
p. 911

Out of 1719 cases collected by
Lebert, Sibley, Siegrist and Snow,
the disease only showed itself in
the relatives of the affected person
in 235 instances or about 13 per cent
of the total number.

Quoted by
Laut & Baubou
Gynecology
p. 471

According to Gussenow out of 1028
cases heredity was only proven in
79, that is about 7.6 per cent.

Idem.

Picot places it at 13 per cent.

Macewen in
Glasg. med. Jour.
vol XXV, 1886
p. 281

Sir James Paget gives 33 per cent and
Guss 11 per cent in cancer generally.

Diseases of
Women: Eng.
translation
1887, p. 364

Winckel thinks it to be at least
doubtful as to hereditary influence.

He noted 6.3 per cent of such cases,
but in many of them the diagnosis
was uncertain in regard to father
or mother.

Looking at the above opinions one
cannot say that there is much
proof that heredity plays anything
more than a small part in the
etiology of cancer of the uterus.

Probably an hereditary predisposition
is more often transmitted. This does

not necessitate any structural change in the organs but a transmitted functional inactivity, an inherent want of power, or a constitutional capacity for cancerous cell proliferation, by which the organ (often the same as the diseased one in the parent) is more liable to suffer from the attack of extraneous irritating causes.

Race.

Hault & Barbour
Gynecology
p. 1471

It would appear from Chisholm's statistics, and Billings and Barker agree with him, that negro women are less subject to cancer of the uterus than white women, the proportion being one to three. Asiatics share the same relative freedom.

G. Allbutt's
System of Gyn.
p. 657

Lancet
21, 1886
p. 149

Percy Dunn considers it should be regarded as a racial disease in this country.

Principles
Practice of
Gynecology
1885 p. 508

Emmet says that in all his professional experience he has only come across one negro woman with cancer of the

uterus, and he thoroughly endorses the view that negroes are less subject to cancer.

Dr Young, writing from the West Indies, observes that among the negro women; "malignant diseases of the uterus and mammae are of very rare occurrence; and even those cases I have witnessed in this class of people, have been among the better orders of them, whose habits of living have been assimilated by those of the Europeans.

Know
activity of
women & Cancer
p. 34.

But more recent statistics of than
bischolm's are those of the town
of Charleston in S. Carolina which
show very little difference in the
death rate of the two races; but
then it must be remembered
that the conditions of civilised
life exist here, so that the
inference is that civilisation, with
its production of persons more
highly organised intellectually and
morally, instead of having an
ameliorating effect, has a

Middleton Michel
Medical News
Oct. 8th, 1892.

deteriorating one as far as malignant disease is concerned. It would appear that in monkeys and other mammals uterine cancer is very rare, being hardly known to veterinary surgeons.

Brit. Med. Jour.
Dec 7, 1889.
Report of Path. Soc. of London.

Locality.

Dr. Haviland sought to determine the topographical variations of cancer. He thinks it is more prevalent along low lying marshy land where rivers overflow their banks, than in those parts of the country where there is plenty of hard rock, elevated surfaces, good natural drainage and exposure to drying winds. He based his views on the Registrar-General's statistics of mortality from cancer during the years 1850 - 1870. But there appear to be many exceptions to the rule, and, in fact practitioners in suspected towns refused to recognise any

Geography
Heart Dis.
Cancer & Thrombosis
pp. 74-83.

The Geological
History of
Cancer Origin
Lancet Nov 22
1890.

connection between dampness of soil and cancer growth.

Waut & Barbour)

'Depreciation of the Vital Powers.'

Gynecologists seem generally to agree that privations, insanitary surroundings and mental worries, conditions found mostly in the lower ranks of life, have some weight as an etiological factor.

Gynecology
1892, Vol II
p. 26.

Pozzi quotes some statistics of Schrueder showing the occurrence of carcinoma in the different ranks of life.

Fibroids Cancer

Out of 14000 hospital patients	285 (2.3 p.c.)		
" " 16800 " "		603 (3.6 p.c.)	
" " 9400 private "	537 (5.7 p.c.)	209 (2.2 p.c.)	

Brit. Med. Jour.
March 27, 1897
p. 779.

Lawson Tait says there are four or five cases of cancer of cervix in Wakefield to one seen in Edinburgh, and in Birmingham it is twelve times more abundant, showing the

more frequent occurrence of cancer in large working-class centres compared to such towns as Edinburgh, where the working-class element is only a small part of the populace.

Snow says: "Carcinoma is preceded, in a very large number of instances, by conditions inducing mental depression; often, under such circumstances that one is forced to regard this, not merely as a predisposing, but as the directly exciting cause."

Schroeder quotes Scanzoni as laying great stress upon previous depressing states of the mind in the production of cancer, and Fleetwood Churchill in 1844 enumerates the "depressing passions, bad food, exhausting occupations, unhealthy localities" as predisposing causes. Garriques believes it is much more common in the lower classes for the same reason.

Dr. Leith Napier, while not doubting that poverty and inattention to

Predisposition
women to
cancer. p. 57.

Diagnosis
neurotop.
p. 276.

The principles
diseases of
females
p. 231.

The menopause
p. 242.

personal cleanliness are likely to favour deficient vitality, yet thinks that the general increase of cancer seems to affect races, nations and districts which are most removed from actual work.

Dr Sinclair of Manchester, whose experience is based largely on the working-class women of Lancashire and surrounding counties, is strongly in favour with the view that deficient vitality is one of the chief predisposing causes.

He quotes Gustav Müller's 577 cases of cervical cancer which were found exclusively among the working-class, and he says his experience is, with very few exceptions, the same. The frequent labours, the early getting up, often only three or four days after the labour, long before the uterus has regained its normal size and position, the worry and noise arising from perhaps half a

Clifford Allbutt's System of Gynecology p. 657.

dozen children, the too frequent falling back on alcohol as a stimulant, with its production of a chronic metritis, the insanitary conditions, often entirely due to the neglect of the women themselves, the tea and bread-and-butter diet, instead of suitable nourishing food, all these conditions so common in the large working-class towns of Lancashire and Yorkshire cannot fail to have an injurious effect on the uterus, for we know, from almost daily experience, what an intimate association there is between the sexual organs of women and the central nervous system, and how these organs are influenced in very many different ways by emotional conditions. The fact is, that of all causes of the cancer process, neurotic agencies are the most powerful. Of these distress of mind is one of the most, if not

the most, commonly met with, and exhausting toil and privation mark next. Idiots and lunatics appear to be remarkably exempt from cancer in every shape.

Parturition.

Parturition appears to bear a distinct relation to carcinoma uteri, as the following figures of Glesker show.

	<u>Single</u>	<u>Married</u>	<u>Widow</u>
Out of 1000 Vienna women over 20.	459.	408.	133.
" " " " " with uterine cancer.	229.	503.	268.

Emerson's Encyc.
Diseases of Sex.
Organs
p. 275.

There are two facts worth noticing:

1. Women who conceive are more the subjects of cancer of the uterus than those that do not conceive.

This is supported by the following figures of various observers:

Diseases of
 Women" 1887
 p. 364
 quoted by
 Winckel p. 366
 Idem.
 Principles &
 Practice of
 Gynecology
 1885: Table XXXIX
 p. 572.
 Gussen's Encycl.
 p. 275
 quoted by
 Madden "Clinical
 Gynecology" 1893
 p. 219.
 System of
 Gynecology
 p. 658
 quoted by
 Sinclair in
 above p. 658.

- ¹ Winckel in 130 cases of cancer found
 1.7 patients unmarried
 and $\frac{2}{3}$ had given birth to one or
 more children.
² Hofmeier in 512 cases of cancer uteri found 4.8 p.c. had not conce
³ Junk. " 925 " " " " " 7.4 p.c. " " "
⁴ Gmnet " 53 " " " " " 0 " " "
⁵ Schroeder &c. " 531 " " " " " 15.4 p.c. " " "
⁶ Reamy in about 300 " " " " " about 3.6 p.c. " " "
⁷ Sinclair in 100 " " " " " 1 p.c. " " "
⁸ Müller found 5.3 p.c. " " "
 (but cancer of body not deducted.)

ii. It is women who have above
 the average number of children
 that are more subject to cancer
 of the uterus than those who
 have below the average number.
 This is supported by the
 following figures:

- Diseases of Women
 p. 364
 Idem.
 Idem.
 Gynecology
 Table XXXIX
 p. 572
 Syst. of Gynecol.
 p. 658.
- Winckel in 130 cases found 5.6 p.c. of children
Gussenow found 5.6 p.c. " "
Hofmeier " 512 " " 5.2 p.c. " "
Gmnet " 53 " " 5.16 p.c. " "
Sinclair " 100 " " 5.8 " "

How is it then that parturition should be a factor in the causation of this disease? It may be due to the wear and tear which the uterus has undergone in successive pregnancies, especially when it has sustained injuries in labour, such, for example, as laceration of the cervix. It has been noted on a previous page that savages are not as subject to carcinoma uteri as the civilised whites.

This may be partly accounted for on the ground that their labours are easier; the foetal head is smaller owing to poorer brain development, and "the dolicho-cephalic shaped skull adapts itself more readily to the pelvis. The pelvis of the negress is comparatively large in proportion to the size of the child's head."

Playfair also thinks that "civilisation and intellectual culture, have considerable influence on the size

Mopinand's
anthropology
pp. 242, 305.

Midwifery
6th Edn.
Vol. I. p. 121.

of the foetal skull."

It is often said that difficult labours in which forceps are used are a precursor of this disease, owing to the tearing of the cervix which often happens in such cases. Whilst agreeing that a certain amount of laceration often cannot be helped and may even be of use for the thorough discharge of the lochia, not only in instrumental but also in normal labours, still, I think that much of the tearing which often occurs might be prevented by the more general use of chloroform in such cases, for the cervix could then be allowed to dilate more slowly, than when the woman is in continual agony and ^{one} cannot help but feel inclined to end the labour as speedily as possible, regardless of the rule that traction should be made only with the pains, or if they are absent that it should

be made at regular intervals. Unfortunately chloroform in labour is as yet looked upon with dread both by practitioner and patient in many parts of the country.

Lacerations.

Among gynecologists who believe that lacerations have a very decided influence in the causation of carcinoma uteri, are such men as, ¹Emmet, ²Baldy, ³Garrigues, ⁴Breisky, ⁵Brook H. Wells, ⁶Leith Harper, ⁷Sinclair, ⁸Jennings and ⁹Macnaughton Jones. Sir John Williams, however, does not consider this to be a cause.

We owe much to Emmet for bringing to the front many of the diseases, including cancer, which result from these tears. But Henry Bennet in 1849 drew attention to this result, and Thoburn says he remembers Sir J. Y. Simpson

"Gynecology" 1885 pp 504, 511
"Gynecology" edited by Baldy p. 265-
"Diseases of Women" p. 388
Quoted by Poggi in "Lancet" Vol 1, p. 203
American Journ. of Obstetrics 1888 p. 266.
"The Menopausal" p. 244.
"Syst. of Gyn." p. 660
"Lancet" Vol 1, 1886 p. 827
"Diseases of Women" 1897 p. 335.
"Diseases of Women" p. 239

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at the Edinburgh Maternity Hospital calling attention to a torn cervix as a common cause of aggravated cervical disease. The concensus development may occur in recent tears, or it may be that it does not occur for many years after the production of the tear, perhaps not until active circulatory changes are going on in the cicatricial mass that may have been thrown out between the lacunated surfaces. Such a mass might be removed by absorption, but at other times it becomes a centre of irritation. In 53 cases observed by Emmet he found an average of 13.87 years had elapsed since the last pregnancy. The depth of the tear is of some importance, for Wells from a study of Mundé's cases finds that the data show a progressive increase in the frequency and severity

Synecology
p. 572

American Jour.
of Obstetrics
1888 p. 263

of the lesion corresponding to the tear.

Paustritions and abortions, the latter often of a criminal nature, are the cause of these tears, though it is as well to remember that Fischel and Küstner describe a divided condition of the cervix as being a congenital one. Rapid labours, and even more so, prolonged tedious labours, and the application of forceps with rapid dilatation of the os, are the most frequent cause. Baucker and Mundé both state that these tears are more common among the poorer classes than among the better ones; this is probably owing to the better treatment during and after labour that the latter receive. This, on the belief that lacerations are etiological factors in the causation of cervical cancer, will partly account for the greater affinity the disease has for the poorer

Barnes's Gyn?
p. 444

Hart & Baubour
"Gynecology"
p. 294

classes.

p. 444

Emmet found that 32.8 per cent of women coming under his professional care, and all of whom had been impregnated, had lacerated cervixes. He says he has never

p. 5-11

failed to detect laceration in cases of epithelioma, unless the disease is extensive and has involved the vaginal surface; and he believes that nearly all, if not all, cases of epithelioma or cauliflower growth have their exciting cause in a lacerated cervix.

Pozzi Gyn⁷
Vol 1, p. 187

Mundé found 25 per cent of women suffering from lacerations, but only 11 per cent were deep enough to have a pathological significance.

American Jour.
of Obstetrics
1888 p. 266

Brook H. Wells found in 20 cases of cancer 7 who were known to have suffered from cervical tears.

He relates a case of a torn eroded and everted cervix, which he was not allowed to remedy;

twelve months afterwards the patient returned with an extensive carcinomatous mass.

Baibour relates a case of cancer which developed in the puerperium, showing the relation of cervical cancer to labour.

D^r Leith of Edinburgh mentions a case following a difficult labour. The cervix was split in several directions, and he thinks, and rightly too, that after all tedious labours the patient ought to be examined.

Dr John Williams does not believe in laceration as a predisposing factor either in the case of the portio vaginalis or of the cervix proper. Assuming that it occurs most frequently, if not entirely, in primiparae, he argues that cancer should be as common in them as in multiparae, which we have seen not to be the case; but it is more likely that the

den. med. Jour.
July 1880

Lancet
April 4th 1896
p. 922

Lancet
Oct 1, 1887
pp 61, 307

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more labours there are, the more risks there are either of disturbance of old tears or the production of fresh ones. Besides one has to take into account the increasing worry and anxiety that often accompany a rapidly increasing family. He also denies that lacerations occasion the development of cancer by reason of the irritation they give rise to. He thinks it should attack the lacerated part primarily, but he has never seen it do so. But when one thinks of the secondary lesions that have been caused by the tear, such as the thickening of the submucous tissue, the production of cervical catarrh with erosions, and the hardened cicatricial tissue around the tear, need one be surprised to see the cancerous growth starting in the secondary lesions instead of the primary one?

Pujos gives his views in the following statement: "I believe that the phenomena of development and involution incident to pregnancy are much more prominent in the causation of cervical cancer than are the tears which invariably follow labour." Doubtless the sudden onsets of developmental and retrograde processes may indirectly have something to do with cancer; but then these processes are common to all parous women, rich and poor alike, and yet the latter are found more favourite subjects for its attack.

Erosions.

Bowreman Jessels in his lectures on cancer of the uterus says that he has no doubt that many cases of incipient granular erosion of the cervix are

p. 8.

frequent precursors of cancer, and later on he says: "I believe it nearly always originates in some crack or erosion of the os which has been the source of irritation", and he recommends that where there is extensive erosion with infiltration of the tissues of the cervix, amputation of the ~~os~~ cervix should be performed.

Bonilly thinks that erosions do not occur without the previous occurrence of laceration; but erosions may be found in virgins and nulliparae as pointed out by Bennet and supported by Pozzi; but they are much more likely to occur in parous women, especially those with lacerated cervixes. The proportion of erosions in an intact cervix to that in a torn one is as 1 to 4.

Though erosion and cancer differ in structure, though only perhaps a difference of degree, yet one

Quoted by
Pozzi.
Gynecology
Vol 1, p. 185.

cannot but believe from clinical evidence that the former is often the forerunner of the latter, and the relation existing between the two is rather an interesting one. It is as well to observe, however, that in the opinion of many Continental writers the relations of erosions to cancer have been much overrated.

What is an erosion? It is a newly formed glandular secreting surface and looks like an extension of the mucous membrane of the cervical canal through the external os on to the lips, and possibly it may occur in this way. The lips are as a rule covered with stratified epithelium, but now not only do they become covered with columnar epithelium but also possess a glandular structure. The glands do not penetrate deeply, but are very numerous, dividing and subdividing.

Plimmer
Int. Gyn. Jour.
Nov^r 1895.

Ruge and Veit hold that these glands arise from proliferation of the cells of the deeper layer of the stratified epithelium. Sir John Williams thinks this "somewhat improbable". Haut and Barbour agree with him. It is much more probable that they are off-shoots of the cervical glands. These burrow superficially beneath the epithelium and send processes through it to the surface, causing the small red points which are seen in an erosion. Fischel thinks the cylindrical epithelium found outside the os ^{in foetal life} has persisted into adult life, thus forming a congenital predisposition to erosions, which is fanned into active life by inflammatory changes. Klotz's observations go to prove that some women get erosions under slight inflammatory changes, while others escape though subjected to severe ones.

Lancet
Vol II 1887
p. 161.

Haut
& Barbour
"Gynecology"
p. 203

Pozzi
"Gynecology"
Vol I, p. 181

This bears out the view that some women are predisposed to erosions.

Cancer of the portio arises by the proliferation of the epithelial cells growing into the underlying connective tissue, but it may also arise from the invasion of the stratified epithelium of the cervix, and according to Rege and Keit 20 out of 21 cases of cancer of the portio originated in this way. The majority of cervical cancers, both those of the portio and the cervix proper, start from the cervical glands or their aberrant extensions. The glands greatly increase numerically, the cells proliferate freely, often blocking up the lumen of the gland and becoming of an atypical nature. On looking at the above facts one cannot but be struck by the fact that the cancerous development is very like an aberrant continual

Manchester
Med. Chronicle
March 1896
p. 219
Foot-note.

repetition of what goes on in the formation of erosions, giving one the impression that the cancerous process is simply an aggravated erosion. The microscopical study of one of John Williams' cases in which an early cancerous condition was associated with an erosion bears out the above statement, and he remarks that cancerous glands often assume forms seen in erosions. Ruge and Veit maintain that as far as the histology is concerned, there is no clear border line between the two.

It is generally believed that the villous growths sometimes found about the external os, either inside or out, are very liable to assume malignant properties, ^{but} ~~and~~ out of three such cases mentioned by John Williams, there was only one which showed cancerous changes, which is not very conclusive evidence.

Lancet
vol 1, 1887
p. 8

Idem
p. 207

Clifford Allbutt
"Cyst. of Syn."
p. 650.

Lancet
Idem
p. 161.

Venereal Disease.

i. Syphilis.

It is questionable in what respect syphilis influences cancer generally, but it is certain that some syphilitic lesions are the forerunners of cancer.

Chancere of the cervix is rare, and most authors ignore its occurrence or state nothing about it except its rarity. G. E. Hermann says he has only seen one case. Thorburn says it is "excessively rare". R. Bonall says "a hard sore on the cervix is occasionally seen". Razümoff regards it as not particularly rare. He has found cervical chancroid in 7.44 per cent of disease found in all of the body in prostitutes and chancere in 1 per cent. In working women the percentages respectively were 2.32 per cent and 1 per cent.

Brit. Med. Jour.
June 16, 1894
p. 1343.

"Gynecology"
p. 362.

C. Albutt's
"Syst. of Gyn."
p. 182.

Annual of
Med. & Medical
Sciences.
F 19 Vol II, 1891

Brit. Gyn. Jour.
May 1890

Shanton records the development of a malignant growth from

the site of a previously healed specific ulcer of cervix. There was no doubt about the syphilitic nature of the primary ulcer. In the same number of the Journal Inglis Parson and Denwick note several similar cases.

Syphilitic lesions of the cervix can only play a small part in the etiology of cancer on account of their rarity, but still it is as well to remember that this is a possible source of malignant disease.

ii. Gonorrhoea.

"Syst. of Gyn^y"
p 660

Sinclair remarks

that there is a suspicious frequency of coincidence of malignant disease of the cervix and a history of gonorrhoeal infection. Winckel is also of opinion that it favours the development of carcinoma.

Diseases of women
1887
p 366.

But prostitutes have not been noticed to have any special tendency to its development.

Coitus.

Excessive sexual indulgence has been thought to favour the occurrence of carcinoma, but here again prostitutes do not seem any more liable to it than others. The ungovernable sexual passion exhibited by some women with carcinoma is only a symptom of uterine disease.

Is direct inoculation or transplantation of the disease from one person to another possible in coition?

In Copland's Dictionary of Medicine W^h Watson mentions that he had come across two cases where this had happened. In one of them the husband suffered from cancer of the penis and eventually died from it. His wife also became the subject of cervical cancer and she died from it sometime after her husband.

D^r MacEwen in the discussion on cancer mentions several similar

Vol iii
part 1, p 270

Glasg. Med. Jour.
XXVI. p. 13.

cases. One of them was a case of Dr Donald of Glasgow, in which carcinoma of the penis appeared three months after the death of the wife from uterine cancer. It would appear from these cases that the answer to the above question should be an affirmative one, but the general opinion is at present of a sceptical nature.

In relation to this factor Dr Leith of Edinburgh notes that in cases of cancer of the uterus enquiry as to the condition of the husband's penis often elicits the information that smegma accumulates behind the glans, and beneath the prepuce. Whether this has anything to do with the causation of cancer one cannot say.

Lancet
 April 4th 1896
 p. 922.

Sarcoma of the cervix is very rare and on this account no statistics are available from which we can get help in the search for its etiology.

Winckler mentions 8 cases besides some of his own but no cause can be stated beyond general predisposing causes.

Roger Williams thinks that certain forms of sarcoma which are found here, with which are blended foreign elements - such as cartilage, may be caused by and have their origin in sequestrations from the matrix of adjacent tissues during early embryonic life.

Quoted by
Haut & Kenyon
"Gynecology"
p. 507

Arch. Med. Jour
Oct 10th 1896
p. 1022

Malignant Disease Body of the Uterus.

Very little is known regarding the etiology of malignant disease of the body, still its relation to age and parturition are worth looking at.

There are three forms in which it is found:

1. Carcinoma.

This is of much less frequent occurrence than that of the cervix.

Krukenberg found it in 20 out of 235 cases

Guiffiths " " " 1 " " 61 "

Age.

It appears to be most commonly found after the menopause.

Hofmeier's average age was 54 years

Sinclaire's 5 cases were all past the

menopause. Two of them had been married, but only one had been pregnant.

Heumann found average age 57.4 years.

C. accubito
"Exp. of Gyn."
p. 713.

Pozzi vol ii
p. 94
"Exp. of Gyn."
p. 715

American Jour
of Med & Sciences
Feb 1895.

Quoted by
Haut & Ranbom
"Gynecology"
p. 501.

Veit's 80 cases showed

Between 50 and 60 years 31 cases

Above 60 years 21 "

Rugel and Veit's 16 cases showed

Under 40 years were 2 cases.

Between 40-50 " was 1 case.

" 50-60 " were 6 cases.

" 60-70 " " 7 "

B. Jesset has not met with a case before the menopause. The age in his cases were

43	52	62
44	55	63.

Parthurition

Multiparæ are more often the subjects of carcinoma of the body than parous women. Sir John Williams mentions 13 nulliparæ out of 18 cases.

Veit's cases showed

38 nulliparæ out of 72 cases.

Thus it will be seen that age and parthurition bear a different relation to cancer of the body than to that of the cervix. Moreover,

Lancet
Vol. 1. 1887
p. 303.

Haut & Ranbom
"Gynecology"
p. 501.

The patients are generally found to be of the better class.

ii. Sarcoma.

As a rule it attacks young people, but the uterine body appears to be an exception to the rule for elderly women are attacked more often than young ones.

Age.

B. Jesset mentions three cases all of whom were over 60 years of age.

Schröder gives 8 cases of "Sarcoma of the parenchyma of the uterus."

"Young"	1 case
20 - 29 years	2 cases
30 - 39 "	5 "
40 - 49 "	8 "
50 - 59 "	1 "
Over 60	1 "

Gusserow's cases along with 8 collected by Haut and Barbour are:

Cancer of Uterus" p. 7.

Snow on Cancer p. 147.

Haut & Barbour "Gyn." p. 507.

Under 20 years 14 cases.

Between 20-30 " 5 "

30-40 " 17 "

40-50 " 31 "

50-60 " 19 "

60-70 " 4 "

over 70 " 1 "

A. R. Simpson's cases were all approaching the menopause or beyond it. Three of them were parous and one was unmarried. Their social surroundings were of a comfortable nature.

Parurition.

Out of Gussenow's 63 cases 25 were sterile.

Out of 14 cases of Schröder +

3 were nulliparae
3 had 1 child
3 " each 3 children
1 " 2 "
1 " 5 "
1 " 6 "
2 were "multiparae".

The menopause appears to be the commonest time for it

Contributions
to Obstetrics +
Gynecology
p. 245.

Hart + Barbour
"Gynecology"
p. 507.

appearance. The cases of A.R. Simpson and Schröder cannot be said to favour multiplicity as a cause. It may arise from a suppurative endometritis and sometimes it develops in a fibroid. Keith Hapier relates a case (case XV) which is an example of malignant transformation of an old uterine fibroma after the menopause. Alben Doran has shown that sarcomatous degeneration of the meshwork of a fibroid sometimes takes place and in May 1890 showed a case that was mostly made up of well-formed, plain muscle cells, but also included large collections of relatively short spindle cells, with broad oval nuclei.

A.R. Simpson also describes a case of probable fibromyoma in which sarcoma developed. In 5 out of Bennett's 7 cases the disease developed in connection with supposed fibrous growths.

"Menopause etc"
p. 219

Snow
"On Cancer"
p. 146.

"Contributions
to Obstetrics +
Gynecology"
p. 242.

"Gynecology"
p. 520

iii. Deciduoma Malignum.

One of Marchand's conclusions regarding this disease was that mole pregnancy favoured its production, and many of the cases that have been observed have this history. Spencea has observed it in 45 per cent of the cases. The parts of the decidua left behind ought to help in the regeneration of the mucosa, themselves disappearing in the process. But sometimes they persist, giving rise to various morbid conditions, one of which is this deciduoma malignum, probably a form of sarcoma. The age and number of children cannot be said to bear any relation to the disease in question. The ages mentioned in the Manchester Med. Chronicle by Sinclair in a review of the literature of the subject were:

33	24	17
23	27	34
(two) 25	35	48

Manchester
Med. Chronicle
Dec. 1895
p. 211

Quarterly
Ann. of Medicine
July 1896.

{ December 1895
{ January 1896

Syst. of Gyn^y
p. 737.

Sinclair gives the average age
as 33.7 years in 26 cases.

The average number of children
was 4.7.

Having now reviewed the
various etiological factors and
remembering that prevention is
better than cure, is it not possible
to lessen this scourge which affects
women? Some of the factors,
such as heredity, we cannot interfere
with. But I think that by the
more general use of chloroform in
instrumental labours, by the
timely treatment of erosions and
torn cervixes, by impressing on
women the necessity of lying in
bed at least ten days after their
confinement, by keeping a careful
lookout on fibroids and polypi,
which do not disappear, but may
enlarge, after the menopause,

and by trying to elevate the general masses from insanitary habits and surroundings, I think that by these means we may lessen the occurrence of this disease, and thereby prevent the greatest suffering that woman is heir to, which aim is one of the grandest of our profession.

The following are three cases of cancer of the cervix which have recently come under my professional care. The first one has just died, and the other two are nearing the end.

i. Mrs Roberts.

Age 52. Menopause began at 46. Widow. One child at 31 years. Had instrumental labour. First noticed discharge 18 months ago. No hereditary history obtainable. History of much worry and trouble with relatives, who refused, though able, to help to herself and child. Consequently she had had to work hard to support both, the husband having died shortly after the birth of the child.

ii Mrs Barnes.

Age 56. Menopause began at 46. Six children, last at 41.

13

5-

All labours tedious and instrumental, with exception of second one, which was a breech presentation. Always got up on 4th or 5th day after confinement, and doing usual laborious housework (e.g. baking, washing) at end of fortnight.

Had discharge 2½ years.

No hereditary history.

iii Mrs Holden.

Age 48. Menopause began at 45. Had discharge 2 years.

Had 5 children and 2 miscarriages.

Last child at 37. Easy labours with exception of one before last, which was and instrumental. After this labour she never regained her normal health, always complaining of pain in her back and general debility.

She dates her present illness from it.

Has a comfortable home.

No hereditary history obtainable.

There are some facts worth noticing in these cases in reference to the etiology of the disease.

Age in i + ii later than the average, and after the menopause; in iii ~~at~~ the disease developed during the climacteric.

No hereditary history obtainable. Number of children above the average in i + ii.

In ii there was much neglect by the patient herself after confinement.

In iii general debility dated from her instrumental labour.

In i + ii there was a history of a struggle to "make ends meet", and in the former this was accompanied by mental distress.

