CASES OF CARCINOMA & EPITHELIOMA

IN CHILDHOOD & YOUTH.

With Notes.

---:0:0:0:---

CASES OF CARCINOMA & EPITHELIOMA
IN CHILDHOOD & YOUTH

With Notes.

Introduction.

During recent years much has been written concerning Malignant disease in early life, and many cases published. Most of these, however, refer to neoplasms of a sarcomatous nature, but the number of recorded cases of carcinoma and epithelioma in the young is comparatively rare. This is to a large extent accounted for by the fact that should a malignant growth occur in a young subject, it is most frequently of the nature of a sarcoma.

In using the term "cancer" in what is to follow I refer to neoplasms of a carcinomatous or epitheliomatous nature only and do not include sarcomas.

Even in standard text books on the subject of diseases of children, and in those dealing specially with the subject of malignant disease little or nothing is to be found concerning cancer in young subjects.
Etiology of Cancer in the young.

The reason why this disease should occur most frequently in persons of middle or advanced life has been the subject of much discussion, and various theories have been put forward as to why this should be by the various writers.

I cannot here enter into all that has been written on the subject, but as yet no theory that has up to the present time been advanced as to the reason why cancer is a disease of middle or late life sufficiently accounts for those cases which occur in the earlier age periods, and I am of the opinion that we must wait till the true cause of cancer is definitely established before we can draw accurate conclusions as to why it is so unusual to find the disease in the young. Hutchison asserts that "malignant disease in young persons is generally inherited".

Of cases of cancer in young subjects where I have been able to find out the family history I have never yet come across a single instance with a history of cancer in the family.

Williams\(^1\) states that in his experience "children
born of mothers themselves suffering from malignant
disease rarely develop any sign of it in childhood".

It has also been stated that malignant disease in
childhood is frequently congenital in origin. This is
a difficult point to settle. Some cases certainly may
be, but in others one can scarcely believe that a neo-
plasm that has not made known its presence for some con-
siderably appreciable time after birth, and should then
be found to be of a malignant nature could be congenital
in origin.

One must also remember that it is stated that the
tumour may be at first simple in nature and later assume
malignant characters and that according to some writers
this is more prone to happen in the young, especially in
the case of a carcinomatous growth arising first of all
as an adenoma.

**History of cases of cancer in the young.**

One is very struck by the remarkably malignant
nature of such cases as shown by their clinical histories.

All the cases that I have had the opportunity of ex-
amining showed a marked malignancy, most of them had an
early and fatal termination, and came under observation too late for anything save palliative treatment. There seems little room for doubt that if it were more frequently borne in mind that cancer can and does occur in remarkably young subjects such cases would come under the hand of the operating surgeon sooner, and so lead to more satisfactory results.

It must be remembered that in dealing with cases of cancer in childhood one often has ones attention called to the condition when it is in a fairly advanced stage.

Pathology of Cancer in the young.

As far as I have been able to ascertain almost any tumour of the above nature that occurs in older subjects may be found in the young.

I have already noted the very malignant nature of such cases, and their usually rapid and fatal termination, but Rodent Ulcer has been observed with a history of the disease commencing at the remarkably early age of 14. (The notes of this case are given later)

The seat of cancer in the young bears a direct proportion to the seat of the disease in older subjects.
That is to say, that where it is commonly found in persons of middle or advanced life it appears commonly in the young and vice versa, with one or two exceptions, e.g. the lip. But even there where it is said almost invariably to occur in those who have been in the habit of smoking a clay pipe and are advanced in years it has been observed in young subjects. (The notes of such cases are also given)

Therefore one may say that where one finds carcinoma or epithelioma in older subjects one may with rare exceptions also find the same in the young.

Microscopically these neoplasms present the same characteristics whether taken from old or young people.

I was led to take the present subject for my thesis by having the opportunity of observing several interesting cases of cancer in young subjects.

When I came to read up the literature on the matter I found that British writers at all events had written remarkably little on it. Certainly those abroad have published more concerning malignant disease in youth.
The histories of the cases I have myself seen together with three microphotographs to illustrate them (beautifully prepared for me by Mr. Richard Muir of the Edinburgh University Pathological Laboratory) I append together with other cases that I have collected from various sources (acknowledged in the Bibliography).

I think that they well illustrate the several points that I wish most particularly to bring out.

Firstly. That cancer can and does occur in very early life.

Secondly. That when the disease does so occur it is of a very malignant nature.

Thirdly. Therefore early diagnosis is most essential for its proper treatment.

Fourthly. The prognosis in such cases is usually bad.

Fifthly. That in young subjects the disease may occur in any of the parts of the body where it is found in older persons.

Sixthly. That almost any form of carcinoma or epithelioma may occur in the young.
Bland Sutton states that epithelioma usually attacks the lip between the ages of 35 and 60 years, but that it has been recorded as early as the 25th year.

Johnstone has recorded a case of the disease in a young man aged 18 admitted to the City of Dublin Hospital in March 1898. He gives the following notes of the case:

About Xmas 1896 the sore on the lip commenced as a small "sore or blister". It periodically became covered with a scab which remained on for a space of two or three weeks, then fell off leaving a raw surface which did not bleed. Patient complained of no pain unless the sore was touched.

There was no particular history of irritation from smoking, and there was no family history of malignant disease.

The sore was about the size of a three penny piece and situated on the left side of the lower lip, near the angle of the mouth. It partly involved the red margin of the lip. It had no distinct edges and was surrounded by an irregular indurated zone slightly inflamed.
The edge was raised slightly everted and uneven. The floor of the ulcer was depressed and covered with a scab which left on removal a ragged floor devoid of granulations. Palpation revealed no enlarged glands. Microscopic Section showed it to be a typical epithelioma "sending deep prolongations into the subjacent tissue". The subcutaneous tissue was thickened and infiltrated, and contained numerous masses of epithelium concentrically laminated, and degenerated in the centre. The muscle fibres were extensively infiltrated with small round cells and atrophied and numerous cell nests were found among the muscle bundles similar to those in the subcutaneous tissue. The growth of epithelium did not penetrate to the mucous glands on the inner side of the lip. Some doubt has been thrown on the above case as it has been said that it does not exhibit the clinical signs of malignant disease and it is doubtful whether in such a case a diagnosis based solely on the histological examination can be altogether accurate.

Krasnobaef⁴ records a case of epithelioma involving the upper lip and extending to the right ala naesi in a girl of 8 and Batashoff⁵ records the disease as occuring in a girl aged 13, but in both these cases the diagnosis
was mainly based on the microscopic examination. Gangolphe has seen the disease in a boy of 15. By way of contrast and as a matter of interest it may be stated that the disease has been recorded in a patient aged 102 years by Jallard.
THE TONGUE.

Variot has seen epithelioma affecting the tip of the tongue in a boy of 3 years of age. The diagnosis was confirmed by histological examination.

Hayward has seen the disease in a woman of 23. Out of 290 cases collected by Barker, the youngest case in which the disease occurred was aged 26.

THE STOMACH AND PYLORUS.

It appears to be very rare to find cancer attacking this organ before the age of 30 years.

In Welch's collection of 2,033 cases only 2.8 per cent were under 30.

Cullingworth published a case of the disease in an infant of only 10 days old. Vomiting then appeared and shortly afterwards the infant died. At the post-mortem examination a small growth was found at the pylorus. Dreshfield examined this growth microscopically and found it to be a cylindrically celled epithelioma. The origin of the disease in this case may safely be said to have been congenital.
Ashby and Wright\textsuperscript{12} publish a case of a boy of 3 suffering from carcinoma of the stomach.

The child came under observation on Sept. 1st 1890. There was then no pain, vomiting or diarrhoea, but there was considerable abdominal distension. Coils of intestine were distinctly seen through abdominal walls. On palpation there was no abdominal tenderness and no tumor could be felt.

Patient was discharged from hospital on Feb 2nd 1891 somewhat improved.

He was readmitted on April 23rd 1891. Abdomen was distended and tender and a tumour could be felt below the edge of the liver to the right of and at the level of the Umbilicus. Patient had frequent and severe colicky pains in this region. He gradually got more and more emaciated and died on May 15th. A Post Mortem examination was made which showed the Transverse Colon near the hepatic flexure, the duodenum and the omentum were matted together. The stomach was found to be dilated and its walls thickened, the pyloric opening just admitting the forefinger. On the cardiac side of
of the pylorus were two small growths of the size of peas, on the duodenal side there was an irregular cavity the walls of the first part of the duodenum having been destroyed by new growth, lower down were some polypoidal looking growths, below these the mucous membrane was normal.

Microscopic examination of the neoplasm showed it to be a columnar celled epithelioma.

This case can scarcely be regarded as congenital in origin and from a clinical as well as from a pathological point of view was evidently cancer.

Norman Moore has published a case of carcinoma attacking the cardiac end of the stomach in a girl of 13 years of age. She complained of no special symptoms till two days before she died when persistent vomiting set in.

Sheffer has seen cancer attacking the pylorus with dissemination in the spleen in a child of 14 years.

Koster has seen cancer of the pylorus at the age of 17 years.

Glynn has noted the same disease attacking the stomach in a case aged 20.
Mathieu has written a valuable paper on the subject of cancer of the stomach in the young. He draws attention to the following facts.

Firstly. That the symptoms of cancer of the stomach below the age of 30 generally come on rapidly.

Secondly. That the course of the disease in such cases is usually very rapid and that frequently the patient dies suddenly.

Thirdly. That the condition is frequently overlooked.

Fourthly. That the mean duration of the disease in young subjects is about 3 months.
Fitz states regarding carcinoma of the above organ that it most frequently occurs between the ages of 30 and 50 "although it may be present in children and has been found at birth".

I have been unable to find any case recorded as occurring in a very young subject and therefore I give the following note of a post mortem examination made on a boy aged 14 years by Dr. Welsh during the time he was Pathologist to the Edinburgh Royal Infirmary.

The case was under the care of Dr. Affleck who kindly gave me permission to use the notes.

External Appearances - Extreme emaciation and lividity. Oedema of lower limbs. Rigidity absent, great distention of the abdomen with dilation of the superficial veins.

Thorax. Pericardium healthy containing an ounce of dropsical fluid. Right pleura showed scattered adhesions and contained twenty ounces of fluid. Left Pleura contained thirty two ounces of fluid and had no adhesions.

Heart weighed six ounces. Epicardium diffusely thicken-ed over whole surface. Arterial valves competent and
segments of all the valves healthy. Pulmonary measure .75 Aortic .8 Mitral 1 Tricuspid 1+. Left ventricle small 2½ ins long $\frac{3}{8}$, $\frac{3}{4}$, $\frac{3}{4}$, ins thick. Endocardium thickened. Muscle atrophied and some "interstitial bands"

Right ventricle dilated & thin = $\frac{1}{8}$ in. thick.

Right lung weighed 10 ounces, Upper Lobe markedly oedematous. Lower lobe collapsed. Through the lung were scattered numerous secondary nodules of cancer about $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter. The margins of these nodules were congested and the centres depressed and umbilicated and the nodules were found to be most numerous in the deep layer of the pleura.

Left Lung weighing 9 ounces was found in a similar condition, the nodules however were somewhat larger about $\frac{3}{8}$ inch in diameter.

The Bronchial Glands at the root of each lung were somewhat enlarged and infiltrated with cancer.

Abdomen. Peritoneal sack contained 110 ounces of greenish yellow fluid. There was no peritonitis. The liver was examined in situ before the thoracic or abdominal organs were displaced. It was found to be enormously enlarged by numerous cancer nodules, probably secondary.
The lower border of the liver reached as far down as the Right Anterior Superior spine.

Measurements of the liver in situ -
8 inches below costal margin in the Right Mammary line,
8 ¼ inches below base of Ensiform in middle line,
6 ½ inches below costal margin, in left Mammary line,
2 ½ inches above left anterior superior spine.

After removal from the body the liver measured when placed on a flat surface -
12 inches in the maximum transverse diameter.
10 ½ inches in the maximum antero-postenor diameter of the Right lobe.
6 ½ inches in the greatest depth of the left lobe.
Weight of the liver alone was 12 lb 7 ounces.

The enlargement was due to the presence of numerous masses of new growth probably cancerous and probably of secondary origin. The masses were somewhat more abundant in the Portal region, but were on the whole uniformly distributed. In size they varied but were for the most part from one to two inches in diameter. With few exceptions they had an intensely congested periphery,
and the centres were depressed and umbilicated. On section the tissue was white firm and with fibrous changes towards the centre of the nodules.

The liver tissue proper was largely replaced by these nodules and when present showed compression atrophy and fatty changes.

The spleen weighed 12 ounces, was large and pale and showed no nodules.

The Kidneys were Anaemic otherwise healthy.

Adrenals showed no obvious lesion.

The Pancreas — The head of the organ was enlarged and showed considerable induration and adhesion to the duodenum and stomach.

The Stomach — appeared healthy apart from pyloro-duodenal junction which showed a row of small congested mammilated projections in the mucosa with some induration of the deeper coats.

Duodenum healthy, papillae showed no obvious changes.

Gall Bladder and biliary passages were quite healthy There was no jaundice. A probe could be passed along the common bile duct into the duodenum. Small intestine showed enlarged solitary glands in ileum and super-
ficial ulceration in a few Pegers patches.

Caecum, vermiform appendix, colon and rectum were found to be healthy.

Bladder and prostate healthy.

The primary growth was not made out by naked eye examination. Dr. Welsh on cutting sections came to the conclusion that it was in the head of the pancreas. Sections showed the growth to be of the nature of a carcinoma. Unfortunately I was unable to obtain the sections for the purpose of having them microphotographed as they were mislaid but the microscopic examination left no doubt as to the nature of the growth.

Infiltration and enlargement of lymphatic glands were most marked in the region of the pancreas and in two directions spreading from it, viz:

1st Along the biliary passages many enlarged glands were found passing up to the portal fissure – hence the liver infection.

2nd Upward along the oesophagus to the glands of the posterior mediastinum and bronchial glands and hence the infection of the lungs.
THE RECTUM.

One might almost conclude, judging from the number of published cases, that when cancer attacks the young, the rectum is more frequently found to be affected than almost any other part of the body. Although cancer of the rectum is usually regarded as a disease of middle and advanced life a comparatively large number of cases are on record as occurring before the age of twenty.

Bland Sutton, Allingham, Ball and many other observers have all pointed out how rarely the disease occurs before that age.

Through the kindness of Professor Annandale I was enabled to tabulate 40 cases of rectal cancer which were treated in his wards in the Royal Infirmary, Edinburgh.

The table gives one some idea of the number of cases and the percentage in each age period of ten years.

<table>
<thead>
<tr>
<th>Ages.</th>
<th>Under 30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. in each age period of 10 yrs.</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td>13</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Percentage in ditto</td>
<td>2.5</td>
<td>15</td>
<td>20</td>
<td>32.5</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>
Out of these 40 cases it will be noticed that there was only one under the age of 30, that over 50 per cent of the cases occurred between the ages of 40 and 60, there being a gradual increase in the number of cases in each age period of 10 years up to the 6th decade and then a less gradual falling off.

CASES OF CANCER OF THE RECTUM

OCCURRING IN THE EARLY

PERIODS OF LIFE.

The youngest that I can find recorded was one published by Stern. The patient was a girl aged 11 years, suffering from malignant stricture of the rectum, for which lumbar colotomy was performed. Some months after the operation the patient died. A post mortem examination was made, and a stricture of the rectum was found about 4 inches above the anus. A piece of the stricture was microscopically examined and gave all the characters of a cylinder celled carcinoma. It is worthy of note that, from the history of the case, the course of the disease from its outset to a fatal termination, had been a very rapid one.
Allingham has noted the disease in a boy of 13 years of age. The case came under his notice at St. Mark’s Hospital, but owing to the want of a thorough microscopic examination doubts might be raised as to the nature of the tumour and it is quite likely that it was sarcomatous in nature.

Godin observed the disease in a patient aged 15 years.

The following case was treated in the wards of the Royal Infirmary Edinburgh by Professor Annandale through whose kindness I am able to give some notes of it.

J.S. aged 16 years, unmarried, a miner. About 3 months before admission patient began to suffer from considerable pain about the anus and lower bowel, which greatly increased in severity after defaecation. He had difficulty in sitting down as any pressure about the anus produced great pain. Having lived in a state of much discomfort for some time, he decided to go to hospital for advice. Up to the time of the commencement of present illness his health had been good. No history of previous venereal disease could be elicited. There was no history of malignant disease in his family.
On examination a small mass about the size of a bean was seen projecting from the right side of the anus. The mass was ulcerated on its inner surface. Around the margin of the anus and extending for over an inch internally there was pronounced hardening and infiltration, and there was great local pain when a finger was passed into the rectum.

Professor Annandale, by a perineal incision removed the whole swelling and the lower two inches of bowel, and then stitched the cut surface of bowel to the skin edge.

On examining the growth it was found to have a fairly well defined margin at its upper part, there was some ulceration on its inner surface. Microscopically the growth gave the characters of an epithelioma.

Shoening observed two cases in the Rostock Clinic. The first case was that of a girl aged 17 who presented all the signs and symptoms of cancer of the rectum.

From the time she was 7 years she had suffered from rectal prolapse and irritation. About the age of 16 her symptoms became more severe. A year later the tumour was excised, but the disease returned and she died a few months after the operation. On examining the tumour
it gave all the microscopic characters of carcinoma.

The second of Shoening's cases was also that of a girl aged 17 years who suffered from a large pelvic tumour which infiltrated the surrounding parts and affected the inguinal glands. The infiltration was of such an extensive nature that removal of the tumour was rendered inadvisable. A portion of it was excised for histological examination which showed the growth to be of the nature of a cylinder celled carcinoma in which there was some cystic degeneration.

Cripps and Allingham have both seen the disease in youths of 17 years of age.

I had the opportunity of observing the following interesting case.

The patient was a servant girl aged 18. She came to the Edinburgh Royal Infirmary complaining of difficulty in defaecation with more or less constant lancinating pain in the left iliac fossa. Six months previous to admission she commenced to suffer from severe cramp-like pains in the abdomen which were most severe at night. These attacks of pain were usually accompanied by vomiting. She had suffered from great constipation during the six months previous to admission. The attacks of
abdominal pain and vomiting gradually became more frequent and occurred with even greater severity till at last she decided to go to hospital for advice.

She had been quite healthy up to the time the present illness commenced.

No family history of malignant disease could be elicited.

On examination. Patient was seen to be much emaciated. She said she had lost much weight during the six months previous to admission.

On examining her abdomen it was noted to be slightly retracted, and on palpation numerous hard nodules could be felt in its walls. These were small in size and were below the level of the umbilicus. On passing a finger into the rectum the lower part of it was found to be somewhat ballooned and above this portion a stricture of the bowel could readily be made out. The pelvis seemed to be full of hard tumour masses.

The operation of left inguinal colotomy was performed. When a finger was passed into the abdominal cavity many enlarged glands were to be felt. The
omentum and peritoneum were studded with small hard masses, and a few hard patches were noted on the surface of the intestines. The intestines were tacked down by numerous adhesions. The pelvis was found to be packed with hard masses of tumour.

One of the enlarged glands was taken out for microscopic examination and I am able to give a microphotograph of the section of it, which shows the structure of a carcinoma. (See Page 49)

The case was evidently one of widespread malignant disease of that nature. It had probably started in the rectum and had rapidly infected the surrounding parts. In noting the case we are struck (1.) By the youth of the patient. (2) The rapid progress of the disease from the first onset of symptoms. (3) The extremely malignant nature of the growth.

I have also seen cancer of the rectum in a youth aged 20, a miner. The case was one in Mr. MacGillio-ray's wards in the Royal Infirmary Edinburgh. The first symptoms appeared about eight weeks before admission, but by the time the patient sought hospital advice, removal of the tumour was deemed inadvisable as the disease
appeared to be very widespread and had greatly infected the surrounding parts.

One is struck in noting the histories of these cases of rectal cancer in early life, as compared with those in older patients, by the very malignant characters assumed by the disease, and by the rapid infection of surrounding parts. It appears to be frequently the case that by the time the condition is diagnosed the patient is in a hopeless state as regards the hope of cure by local removal of the tumour.
In the first place it is worthy of note that cancer of the larynx is a comparatively rare disease. When we consider the various parts of the body that may be the seat of cancer it is found that the larynx enjoys a comparative immunity.

Baker\(^22\) collected statistics of 500 cases suffering from cancer and out of that number found the larynx affected 3 times or in \(0.6\) percent of the total cases.

Görllt out of 11,131 cases of cancer found the larynx the seat of the disease 63 times or in \(0.56\) percent of the number.

Winniwater\(^30\) in 548 cases of cancer found the disease in the larynx in one case only or in \(0.18\) percent of the whole.

Lebert\(^31\) classified 9,118 cases of cancer and found the larynx affected in only 3 cases or in \(0.03\) percent.

The comparative rarity of the disease in a measure accounts for the fact that it seldom occurs in the young and its appearance in a subject under 30 years of age is an extremely rare occurrence, and a very few cases are on record as being under that age.
Out of 50 cases collected by Butlin\textsuperscript{32} only one was under 30, in a patient of 23.

I have tabulated a series of 53 cases of cancer of the larynx, which were published by Mackenzie\textsuperscript{33}, which shows the number of cases dying of the disease in each age period of 10 years.

<table>
<thead>
<tr>
<th>Ages</th>
<th>Under 30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cases dying in each age period of ten years</td>
<td>3</td>
<td>6</td>
<td>10</td>
<td>18</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Percentage in ditto</td>
<td>5.66</td>
<td>11.32</td>
<td>18.86</td>
<td>33.96</td>
<td>28.30</td>
<td>1.88</td>
</tr>
</tbody>
</table>

From this table it may be noted that over 80 per cent of the mortality takes place between the ages of 40 and 70 and that only a small percentage before 30.

Lennox Brown\textsuperscript{34} observed that the great majority of cases occur between the ages of 35 and 65.

McBride\textsuperscript{35} Butlin\textsuperscript{36} and Bland Sutton\textsuperscript{37} all point out that the disease is one of adult life although McBride states that "comparatively young people are by no means exempt".
Although it may be admitted that cancer does attack the larynx in young subjects I cannot find any such cases recorded in recent literature though several are referred to in older writings on the subject. And in the absence of microscopical examination and according to the more modern classification of malignant disease the grounds for supposing these cases to be true cancer would probably now be regarded as insufficient and many of them would now be classed as sarcoma, syphilis or papilloma.

There is therefore some reason to doubt the nature of the three cases Mackenzie mentions in his series as occurring under 30, and already referred to, for they were recorded a good many years ago. It would appear, judging from what more recent observers have found, that the percentage of cases under 30 is not so great as 5.6 the figure given by Mackenzie's Table.

**EARLY CASES OF LARYNGEAL CANCER.**

The youngest case on record appears to be the following which was published by Rehn. The disease occurred in a boy at the almost incredibly early age of 3. The patient suffered from hoarse-
ness and loss of voice and from attacks of suffocation. For one of these attacks tracheotomy was performed but the patient died shortly afterwards. A post mortem examination was made and the ventricles of the larynx, the vocal cords and the epiglottis were found all to be affected by a warty growth. One enlarged gland was also found. The growth might almost have been ascribed to being a papilloma but a histological examination of it was made by Virchow who pronounced it to be an epithelioma.

I give somewhat fully the notes of the following case which I had partially under my charge and which I had the opportunity of observing during the time he was in the Edinburgh Royal Infirmary. I have to thank Mr. Alexis Thomson who kindly gave me permission to use them.

The patient was a young man an engine Driver aged 24. The history of his illness is as follows.—In August 1899 he began to suffer from hoarseness of voice which came on from no apparent cause. At that time he experienced neither pain in his throat nor difficulty in swallowing or breathing. He continued at his work as
he felt perfectly well otherwise.

The hoarseness gradually got worse and at the beginning of May 1900 he began to have trouble in swallowing solid food, and he also noticed that about this time he was getting much thinner. One day he was suddenly seized with a paroxysm of great difficulty in breathing and so bad was he that he gasped for breath and his face became cyanosed, the attack lasting about twenty minutes.

Towards the end of May he found it quite impossible to swallow solid food and by that time his throat had swollen so much that he could not button his shirt collar.

On May 29th he was admitted to the North Ormesby Hospital, under the care of Dr. G. Victor Millar who has published notes of his case.

On examination Dr. Millar found the patient to be breathing with great difficulty and with the laryngoscope noted a large growth occupying the region of the right vocal cord and almost completely blocking the glottis. Tracheotomy was performed a few hours later when the patient was unconscious owing to impeded respiration. Dr. Millar examined the larynx about a week later and found the Right arytenoid region very swollen
and oedematous, and afterwards performed thyrotomy and found a large growth springing from the right cord and filling the larynx, which he cleared out. After this operation the patient could breathe without a tracheotomy tube. Professor Greenfield to whom portions of the tumour were sent for examination pronounced it to be a malignant papilloma. The difficulty in breathing soon returned and ultimately Dr. Millar sent the case to Edinburgh to see Mr. Alexis Thomson.

State on admission to Royal Infirmary Edinburgh Oct. 1st 1900.

Patient complained of a lancinating pain in the region of his larynx which increased in severity on swallowing.

On inspection. Patient was somewhat emaciated and it was noted that he could only breathe through the tracheotomy tube owing to the larynx being completely occluded. It was also noted that the wound of the previous laryngotomy was not quite healed. There appeared to be a very marked fulness in the region of the larynx.

On palpation.– The larynx was found to be but
slightly moveable on subjacent parts, and was felt to be uniformly enlarged in all directions, evidently owing to the pressure from within. Attached to the right hyoid bone and apparently immovable from it was a small hard swelling about the size of a bean which appeared to be an enlarged gland, no others could be felt.

I made a laryngoscopic examination but failed to see the glottis owing to the great swelling and oedema about the epiglottis.

The patient apart from his throat condition was in good health and no evidence of disease could be found elsewhere.

His family history was good and he stated that none of his relatives had ever suffered from malignant or Tubercular disease. Patient had never suffered from venereal disease.

On October 1st Mr. Alexis Thomson performed thyrotomy and also divided the hyoid bone. From the posteria wall of the larynx a considerable quantity of pus was evacuated, the source of the pus could not be seen. The box of the larynx was filled with a soft warty mass very like granulation tissue which was exceedingly friable.
and which bled very readily. This warty mass extended up as far as the epiglottis involving the anterior wall of the pharax and perforating the box of the larynx anteriorly between the thyroid and cricoid cartilages on the right side. The tracheotomy tube was plugged round with gauze to prevent the blood entering the trachea and as much as possible of the growth scraped away. The haemorrhage during this part of the operation being severe. It should be noted that no traces of the vocal cords were found.

Dr. Fleming made sections of the tissue removed and found it to be a cellular squamous epithelioma. The enlarged gland was also examined but showed no abnormality beyond a evidence of adenitis. I had two microphotographs taken of Dr. Fleming's section of the tissue viz. a low power and a high power. The low power shows the typical columns of epithelial cells invading the subcutaneous tissues, the high power giving a good example of an epithelial "cell nest". (See pages 50 & 51)

On October 4th Mr. Thomson performed the operation of laryngectomy. He first made a fresh opening in the trachea lower down than the previous one and inserted a tracheotomy tube. Then he removed the whole larynx with
its muscular attachments together with the anterior wall of the pharanx which was found to be much involved. He also removed the epiglottis. A tracheotomy tube was stitched in position also a tube which had been passed into the gullet for feeding purposes. The wound was then packed with Iodoform worsted but otherwise left open and allowed to heal by granulation.

Sickness was caused by the tube in the gullet so it was removed and only passed when the patient was fed – every four hours or so.

A week after the operation the patient was allowed to get out of bed and he rapidly regained flesh and got much stronger.

By the beginning of November he was able to swallow solids and fluids by the mouth and he could then whisper very distinctly.

By the beginning of December the wound was almost healed and his speech was wonderfully distinct especially as regards consonants and he also could whistle a little. Being by this time so well and strong he was sent home having gained nearly two stone in weight during his stay.
Towards the end of the following January he wrote stating that there was a recurrence of the growth in the operation scar and that he was getting thinner and weaker.

He died on June 14th 1901 before which he had suffered a lot from foul discharge and haemorrhage where the recurrence had taken place in the seat of the old scar.

I have given full notes of the foregoing case for three reasons.

Firstly.— Because the extreme rarity of cancer attacking the larynx in so young a subject renders the case an especially interesting one.

Secondly.— To show that even a most thorough and complete removal of the tumour could not prevent its recurrence.

Thirdly.— To call attention to the very malignant nature of the disease in the case.
Coats has recorded the following case which he investigated. It was that of a youth of 17 years old who died from a tumour of the right lung. Secondary nodules were found in the left lung, the brain, the femora, some of the ribs, vertebrae, left ilium and the liver.

Coats considered the case to be one of carcinoma and found many of the secondary nodules to be small cysts lined with cylindrical epithelium.

Finlay has described the case of a man aged 37 who died from carcinoma of the lung. The left lung contained a tumour and the right numerous secondary nodules. Some of the mediastinal lymph glands were enlarged and the liver also contained secondary growths. On microscopic examination the tumours proved to be carcinomatous in character.
THE UTERUS.

When cancer attacks the female, the uterus is very frequently its seat. According to Simpson, between the years 1347 and 1861, 61715 women died of cancer, and in a third of these cases the uterus was the seat of the disease.

In all cases of supposed malignant disease of the uterus, as indeed of any other part of the body, the age of the patient should be taken into account. And in estimating the age of the patient at which the disease commences we must remember that it is almost impossible to be quite sure of the exact date at which it began, for frequently the onset is insidious, and it may have been present for months before the patient feels sufficient discomfort to make her seek advice.

Many authors amongst them being Cullen and Ziemssen have shown that cancer attacks the body of the uterus less frequently and at a later period of life than it does the cervix. Out of 18 well marked cases of cancer of the body Ziemssen found none under 40 years of age.

Through the kindness of Dr. Halliday Croom I was enabled to examine the records of 124 cases of Uterine cancer
which were treated by him in his wards in the Edinburgh Royal Infirmary. The analysis of these 124 cases give very much the same results as those obtained by Cullen Ziemssen and others.

In 95 cases or 76.6 per cent the cervix was affected, the average age of the patients being 42.7 years. In 29 cases or 23.3 per cent the body of the uterus was affected, the patients having an average age of 50.3 yrs.

Tables showing ages at which cancer most frequently attacks the uterus & also illustrating the comparative rarity of the disease in early life.

Table I.

Of the 124 cases treated by Dr. Halliday Croom and already referred to, the following table shows the number of cases and the percentage of same in each age period of 10 years.

<table>
<thead>
<tr>
<th>Ages</th>
<th>Under 20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. in each age period of 10 yrs</td>
<td>0</td>
<td>7</td>
<td>33</td>
<td>45</td>
<td>23</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Percentage in do.</td>
<td>0</td>
<td>5.64</td>
<td>26.61</td>
<td>36.29</td>
<td>22.58</td>
<td>8.06</td>
<td>0.8</td>
</tr>
</tbody>
</table>


Table II.

Shows the record of 745 cases of Leybert, Kewish, Chiari, Scanzoni, Lever, Lee and Tanner44.

<table>
<thead>
<tr>
<th>Ages</th>
<th>Under 20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. in each age period of 10 yrs</td>
<td>43</td>
<td>167</td>
<td>312</td>
<td>155</td>
<td>62</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Percentage in do.</td>
<td>5.77</td>
<td>22.4</td>
<td>41.9</td>
<td>20.3</td>
<td>8.32</td>
<td>0.8</td>
<td></td>
</tr>
</tbody>
</table>

Table III.

Is the record of 86 cases collected by Cullen45 which appears to have been the result of much careful work by that observer. He mentions that in all of the cases used in making his calculations he was able to note almost precisely the exact date at which the disease commenced, therefore perhaps the table is of especial interest.

<table>
<thead>
<tr>
<th>Ages</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. in each age period of 10 yrs</td>
<td>20</td>
<td>34</td>
<td>22</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage in do</td>
<td>23.25</td>
<td>39.53</td>
<td>25.58</td>
<td>11.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table IV.

Gusserow\textsuperscript{46} was able to classify 2,943 cases of uterine cancer. Out of that number 679 cases were observed in the Frauen Klinik at Munich with a mean age of 45.05 years the youngest being 24 the oldest 73. Of the remaining 2,265 cases there were only 2 under 20 years of age.

The following is his table of the 2,943 cases.

<table>
<thead>
<tr>
<th>Age</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent- (Gusserow age in each decade) (Mun. Fr.Klinik)</td>
<td>3.5</td>
<td>21.0</td>
<td>34.4</td>
<td>25.5</td>
<td>11.3</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Table V.

The following figures show the results of post mortem examinations on 492 cases that died of cancer of the uterus and which were recorded by Hough Blau and Dittrich.

<table>
<thead>
<tr>
<th>Ages</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. in each age period of 10 yrs</td>
<td>22</td>
<td>107</td>
<td>133</td>
<td>153</td>
<td>53</td>
<td>24</td>
</tr>
<tr>
<td>Percentage in do.</td>
<td>4.47</td>
<td>21.75</td>
<td>27</td>
<td>31.1</td>
<td>10.77</td>
<td>4.87</td>
</tr>
</tbody>
</table>
It should be noted that in this table the percentages of cases shown in the later decades of life are greater in comparison than those taken from cancer of the uterus in the living subject while those in the earlier periods of life are correspondingly less. That is to say that the average age is somewhat advanced. This is to be accounted for by the fact that the disease would come under the notice of the pathologist some time later that it would under that of the clinical observer.

The foregoing statistics all go to show how extremely rare it is to find cancer attacking the uterus before the age of twenty. Indeed it may be said to occur in only a very small percentage of cases during the third decade of life. After that there appears to be a marked progressive increase in the number of cases up to 50 yrs and then the numbers gradually decline.

It may be noted in passing that the disease most frequently appears at or about the period of the menopause though a considerable number of cases occur before that time.
CASES OF CANCER OF THE UTERUS IN EARLY LIFE.

Though occurring with extreme rarity several cases of cancer of the uterus have been recorded as occurring in young subjects.

The earliest case that I have been able to find is the following which was published by Ganghofner. From the age of 5 or 6 the patient had been subject to haemorrhagic discharge from the uterus, which was ascribed to early menstruation. When she was 8 years old she was placed under an anaesthetic and a vaginal examination made. A pale nodulated tumour about the size of a hazel nut was found attached to the cervix. It bled slightly on examination. It was removed with scissors and the raw surface cauterised. Shortly after the operation the child died of smallpox and at the post mortem examination that was made it was found that all the tumour had been removed.

Professor Chiari examined the tumour histologically and found it to be an adeno carcinoma.

The examination having been made by such an authority there cannot be any doubt that the tumour gave the
microscopical characters of a carcinoma, but the clinical history of the case and the comparative ease with which the whole of the tumour was removed does not point to it having shown any very marked signs of malignancy. As already stated Gusserow out of 2,943 cases of the disease found it in only 2 under twenty.

Munde records a case in a girl of 18.

Williams collected cases and out of them the youngest patient suffering from the disease was 22 1/2 years of age.

Bland Sutton says of cancer of the cervix that he has seen undoubted cases at 23, 25 and 26 years although he admits it is rare before 30.

In the series of 124 cases treated in Dr. Croom's wards and already referred to seven were under 30, two were 27, two were 28 and three were 29.

The youngest case of cancer of the cervix that I have had the opportunity of examining was that of a young married woman aged 28. In her case no family history of malignant disease was obtainable. The disease had pursued a very rapid course, and by the time she came under medical observation, which was about four
months after the first onset of symptoms it was found to be too far advanced to allow of operative interference and her condition was pronounced incurable.

From the histories of cases I have seen recorded it may be said that almost invariably when in young subjects cancer affects the uterus as indeed when it affects any other part of the body during the first three decades of life, it pursues a very malignant course and a fatal termination is to be expected at an earlier date than if the disease were in an older subject.
MISCELLANEOUS CASES.

Rodent Ulcer commencing at the age of 14 yrs.

The following notes of the case of a girl aged 14 are published by Williams.

The disease first commenced as a small pimple on the left temple. In a few years it had become a small covered sore. It took 8 years to reach the size of a sixpence and another five years for it to reach the size of half a crown. It was then cauterised after which it grew more rapidly involving the left side of the head from the orbit to the ear. It next involved the ear and eyelids, the left submaxillary glands becoming slightly enlarged at this stage.

The patient's general health remained unaffected.

The ulcer was scraped and its edges dissected off. Recurrence followed rapidly on this operation, and was destroyed by Fell's paste. Two and a half years later the ulcer was much larger and more like epithelioma with several adjacent glands enlarged and hard. The disease was again freely extirpated. Three years later it was still progressing and the left orbit became invaded. No further operative measures were resorted to.
Ultimately the orbit became so much involved that the brain protruded and the patient died. The total duration of the disease being nearly twenty-two years.

Histologically the disease was found to be a typical rodent ulcer, and no signs of dissemination could be found in the adjacent lymph glands.

The foregoing case is one of great interest and I cannot find another such recorded.

It goes to show that even rodent ulcer can occur in a young subject although it is stated that this form of malignant disease is almost peculiar to middle and advanced life.

THE EYE.

Rogman\textsuperscript{52} has reported a case of epithelioma attacking the conjunctiva of a boy of 14. The disease having commenced at the outer side of the lower part of the corneo-scleral margin.

Lagrange\textsuperscript{53} has seen epithelioma of the eye in a man of 27 years of age. The patient received a scratch on the conjunctiva from the branch of a tree and a few months later a small tumour arose between the caruncle and the corneo-sclerotic margin.
THE MAMMA.

Bland Sutton\textsuperscript{54} states that "Acinous cancer of the breast never develops before puberty and is very rare before the age of 30" and that "Duct Papilloma and duct cancer appear most frequently between the ages of 35 and 65".

It appears that cancer of the breast in a young subject is extremely rare.

Gross\textsuperscript{54} analysed 1,622 cases of mammary cancer and out of these found the disease in only one case under 30 years of age, in a girl aged 21.

Haycock\textsuperscript{56} has recorded the disease as occurring in the breast of a girl also aged 21.

Erichson\textsuperscript{57} has seen the disease in a female of 23 years.
The above is the microphotograph of section of gland referred to on page 25 and taken from the abdomen of a girl aged 19 who was suffering from carcinoma of the bowel with infiltration of the abdomen.
The above low-power microphotograph is that of a section of the epitheliomatous tumour removed from the larynx of a man aged twenty four (see pages 30-36)

It shows well the columns of epithelial cells invading the subcutaneous tissue.
This is a higher power microphotograph of the epitheliomatous growth just referred to showing a "cell nest in same."
BIBLIOGRAPHY

1. The Lancet 1897 P.1194.
2. Tumours, Innocent and Malignant, P. 197.
5. ibid. No 14. 1893.
8. Journal de Clinique Therapeutique Infantiles, April 26th 1894.
15. Centrablatt für Chirurgerie 1888 P. 327.
17. Du cancer précoce de l'estomac Lyon 1884.
22. Deutsche Medizinische Wochenschrift, June 2nd 1892.
24. Mollières "Traite des Maladies du Rectum et de l'Anus
30. Beiträge zur Statistik der Carcinome, Stuttgart 1878.
32. Malignant Disease of the Larynx 1883. P. 32
33. Diseases of the Throat & Nose. 1880 P. 335.
34. Diseases of the Throat & Nose 1899, 5th Edit. P.685
36. The Operative Surgery of Malignant Disease 1900 P 188
37. Tumours Innocent and Malignant 1893, P. 205.
41. Medical Chirurg. Trans Vol. LX. P. 313
42. Cancer of the Uterus P. 473. 1900.
43. Cyclopaedia Vol. X. P. 297.
44. ibid.
45. Cancer of the Uterus P. 473. 1900.
46. Blumenfeld Munch. Medisinische Wochenschrift 13. 1899
47. "Fur ein fall von Carcinoma Uteri bei einem acht
  jährigen Madchen. Zeitschrift für Heilkunde 1888
  Bd IX. S. 337.
49. The Lancet P. 1194. 1897.
50. Tumours Innocent and Malignant. P. 275.
51. The Lancet 1897. P. 1194
52. Annales de l'Oculistique Tome 113, Mars 1895.
53. De l'epithelioma de la conjunctive bulbaire. Soc
  Francaise d'Ophthalmologie 1892 P. 71.
54. Tumours Innocent and Malignant P. 224
55. Internat. Journal of Medical Sciences, March 1888
  P. 220
57. Science and Art of Surgery.