CONGENITAL DEFORMITY OF FEMUR.

BY

CONOR MAGUIRE, M.D., M.Ch.,

CLAREMORRIS, MAYO, IRELAND.

The following is a case of congenital deformity of the femur which I trust you will consider sufficiently interesting for publication in the *BRITISH MEDICAL JOURNAL*:

A full-grown girl, who walks with the aid of a crutch and stick, consulted me about having an extension made for a short leg.

I found that the right leg is shortened in a very peculiar and unusual way. The knee-joint is placed quite close up to the hip, as if there were no femur intervening between the upper end of the tibia and the acetabulum. The leg and foot of the short limb, although thin and small from

Reproduced from a tracing made on the original skiagram.

want of use, are otherwise normal; the sole of the foot reaches to about the level of the knee of the full-grown limb, so that when the patient stands beside an ordinary chair she can support herself firmly by placing the short limb on the seat of the chair. The limb is about 17 or 18 in. shorter than the other; she has fairly good muscular power in it, and can move it about in any direction.

I sent her to Fannin, of Dublin, who took considerable trouble and fitted a very good extension. While she was in Dublin, Dr. R. Lane Joynt x-rayed the limb, and kindly sent me the skiagram, which shows very clearly the condition of the bones. The upper end of the tibia forms a joint close up to the hip with a femur which has no shaft, and apparently consists of upper and lower epiphyses joined together.

As I am not within reach of a large library, I am unable to speak as to the rarity of the condition, but have not been able to trace any similar cases reported.

The question as to what precisely happened during the development of the femur shaft in this case I must leave to some one better versed in embryology than I. The fundamental cartilage for the femur is laid down as early

as the sixth or seventh week, and a centre of ossification appears in the shaft as early as the second month, according to some authorities. What seems difficult to explain in the above case is the complete absence of the shaft of the femur, which is the first part to be formed; while the extremities of the bone—said to be formed as enlargements of the ends of the shaft—are present. We might also inquire how it was that the lower end of the femur was pulled up and joined on to the upper end.

I must acknowledge with thanks Dr. Lane Joynt's kindness in taking the skiagram and sending it to me.

A CASE OF CHIMNEY-SWEEP'S CANCER,
AND A SUGGESTION AS TO THE
PATHOLOGY OF CANCER.

By D. A. CROW, M.B., CH.B. EDIN.,

LATE HOUSE-SURGEON, ROYAL BUCKINGHAMSHIRE HOSPITAL,
ATLESBURY

The following case presents interesting features which make it worthy of record:

J. O., aged 57, by occupation a chimney-sweep, was admitted to the Royal Buckinghamshire Hospital on October 19th, 1911, suffering from a growth on the scrotum; duration five years.

History.

In 1906 he noticed a hard lump, about the size of a pea, underneath the skin on the front of the scrotum; about eighteen months afterwards it reached the size of a small marble, and ulcerated. It never gave pain, but steadily increased in size.

Previous Health.

He was for several years employed as a sweep's boy to climb chimneys; since then he has been regularly employed in sweeping in the ordinary way. He admits that he has never been very careful to keep clean, and only had a bath about once in three weeks. His brothers used to sleep in the same bed. In 1904 the patient developed a warty growth on the dorsum of the right hand, over the middle of the fourth metacarpal; it developed painlessly, and apparently presented the usual aspect of an epithelioma. In 1906 it had reached the size of a crown piece, and was removed at Guy's Hospital by a J-shaped incision passing 3 in. up the ulnar border of the forearm; the epitrochlear gland was also removed. The result of this operation seems to have been perfect.

Family History.

The patient's father was a sweep for fifty-five years, and died when 64. He developed a scrotal cancer, which was removed about seven years before his death; the cause of death is not known.

One brother died at the age of 45, having had a cancer of the cheek for six years; it started over the right malar bone and spread in all directions until at death it measured about 3 or 4 in. across. He had been a sweep ever since he was a boy.

Another brother died at the age of about 40, having suffered also from cancer of the right cheek; this growth had been noticed for about five years; at the time of death the tumour was about 3 in. across. He also had been a sweep since he was a boy.

The patient's sister died aged about 60; she had suffered for eight years from a cancer of the right cheek in the same situation as her brother's.

The father's sister died, aged 70, from, as was stated, cancer of the liver. A son of this woman died, aged 40, from cancer of the stomach. Another of the father's sisters died of cancer; situation not known.

On Examination.

The skin presented many of the characteristic appearances which Sir James Paget described in the skin of those exposed to soot and paraffin irritation. Thus the skin of the forehead was thin and slightly rough, and there were six or seven separate circular hyperaemic and slightly scaly patches; the nose had similar patches; on the left eyelid was a small pedunculated white wart. The margins of the ears showed small nodules where more than usual cornification had occurred. On the back were about forty small irregular hyperaemic areas, not raised and not very scaly. In the right axilla there was a remarkable group of about twenty-five white pedunculated warts, the largest being about $\frac{1}{4}$ in. long and the smallest almost invisible to the naked eye. In addition there were three or four raised flattened red lumps about $\frac{1}{4}$ or $\frac{1}{2}$ in. in diameter. In the left axilla the only abnormality visible was one of these latter. The skin over the dorsum of both hands, but especially of the left, showed marked thinning, redness and scalliness, with here and there local cornifications, causing in two or three cases well-defined large warts, one specially prominent being observed over the head of the third metacarpal of the left hand. On the skin of the scrotum, chiefly where it came into contact with the thighs, were five or six small white pedunculated warts.

On the anterior aspect of the scrotum there was an irregularly oval area about 2 in. by 1 in., raised above the level of the healthy skin. The surface of this area was red, smooth, and devoid of skin; the edges were rounded and thickened, and in some places actually overhanging, so as to cause a definite sulcus round the mass. Towards the centre of the area there was a smooth, round, whitish nodule about $\frac{1}{2}$ in. round. The whole mass was very hard and quite painless. There was no glandular enlargement to be made out on palpation.

On the legs were two or three small warts; only the dorsum of the foot showed very thin, rough, scaly skin.

Operation.

Operation was performed on October 21st by Mr. Perrin. The growth was removed with a wide margin; the inguinal glands were not touched. The patient made a good recovery.

Histology.

A portion of the growth was sent to the Clinical Research Association; the report on it is as follows: "This growth is a rather atypical squamous epithelioma. It is composed of ingrowing masses of epithelial cells, which infiltrate the tissues and cause a marked round cell tissue reaction. There are no cell nests nor keratinoid changes."

The interesting features of the case are the family history, the condition of the skin, and the previous tumour. With regard to the previous tumour, the patient must have had two primary cancerous growths at the same time, as he says he was aware of the nodule under the skin of the scrotum whilst at Guy's Hospital, but considering it of no importance did not mention the fact.

The literature on the subject conveys the impression that sweeps are not unusually liable to develop cancer on parts of the body other than the scrotum; but it is interesting to notice that of the five growths which occurred in these four sweeps three were not on the scrotum. The patient said that a neighbour of his, who was a sweep, had his ear removed on account of cancer.

Amongst the theories which have been put forward to account for the phenomena of cancer growth as a result of soot irritation, there is one which attributes the new growth to the presence in the soot of a powerful deoxidizing chemical, such as sulphurous acid. If this be the true explanation it brings sweep's cancer into line with cancer in other situations, for it is fairly obvious that cancer tends to arise in those tissues which from any cause lack a good supply of oxygen. To take examples: Cancer arising in scar tissue is by no means uncommon; cases are met with in the scars left by burns or disease, such as lupus; scar tissue in the cervix uteri is very frequently the seat of carcinoma; scars of gastric ulcers are liable to the disease. Again, cancer of the lip and tongue is always preceded by an overgrowth of fibrous tissue from chronic irritation, and this results in a deficient oxygen supply; in the same way cancer will occur in a gall bladder which has been subjected to chronic irritation from gall stones. Cancer develops in the sigmoid flexure of the colon after prolonged irritation of hard faecal matter, which must induce a fibrous overgrowth. In the breast fibrous tissue replaces secreting tissue, and the resulting tissues are but poorly supplied with oxygen.

Primary growth in the lung, where oxygen abounds, is extremely rare; growth in the liver, which receives a large proportion of venous blood, is usually extremely rapid. Fatty tissue, which at no time of life is richly supplied with blood, is liable to give rise to fatty tumours at any age; whereas it is only when the nutrition of the skin and mucous membrane is becoming impoverished as regards oxygen supply, on account of changes due to degeneration of the vessel walls, that tumour growth in the epithelium is met.

If the organism of cancer were demonstrated, and if it were shown to have anaërobic tendencies, the explanation of the predisposition of fibrotic tissues to new growth

would become somewhat more easy to understand. The researches of Smith and Townsend, of Washington,¹ have clearly demonstrated a bacterial origin for the crown-gall of plants, and this is a pathological condition which has the very closest similarity to animal tumour growth, even as regards the occurrence of metastatic growths. The organism was successfully cultivated only after repeated failures. It was found that the organism is scarce in the tissues, that it takes a very long time to appear on a culture plate, but that, when isolated, it very easily gives rise to new growths on inoculating the tissues of the plant. This suggests that the reason why the cancer organism has not been demonstrated in the tissues is because of the small number present; it also suggests that the causes which hitherto prevented the cultivation of the crown-gall organism may be the same causes which prevent the isolation of the cancer organism.

Might it not be that the inoculation experiments with crushed cancer tissue fail because they are not carried out in tissues predisposed to cancer infection?

This view that cancer always arises in tissues deprived of a full share of oxygen and is probably due to an organism, is very easy to criticize. Nevertheless, it attempts to explain the relation of age and chronic irritation to new growth, and in this respect very many cancer theories are found wanting.

REFERENCE.

¹ *Crown-gall of Plants: Its Cause and Remedy.* By E. F. Smith, N. E. Brown, and C. O. Townsend, United States Department of Agriculture, Washington, February, 1911.

THE TUNING-FORK AND STETHOSCOPE IN THE ESTIMATION OF ABDOMINAL AND THORACIC VISCERA.*

By JAMES CANTLIE, M.B., F.R.C.S.,
SURGEON TO THE SEAMEN'S HOSPITAL SOCIETY.

For some years I have used the tuning-fork-stethoscope method in preference to, or along with, palpation and percussion when attempting to outline with precision such organs as the liver, spleen, stomach, caecum, heart, etc. My desire, in the first instance, was to ascertain more accurately than is possible by percussion and palpation the area occupied by the liver and spleen, as these are the chief solid organs affected by tropical diseases; but I found that the hollow viscera also—the stomach, the caecum, etc.—lent themselves to the tuning-fork-stethoscope method of ascertaining their dimensions.

I extended the use of the method to the organs of the chest, and found that several conditions were more precisely ascertainable by this than by the methods of diagnosis in use heretofore. To gauge the exact area occupied by the liver, for instance, by percussion alone can never give results more than approximately accurate, whilst at times it is difficult, and occasionally impossible, owing to pain, distension, etc., to define its outline with any degree of precision. Palpation is applicable to the lowest strip and border of the liver only, and even in the healthy state it is often a matter of opinion rather than an actual clinical fact where its lower border really ends. When, on the other hand, the liver is widely adherent or tender; when the abdomen is tense from distension, or ascitic fluid is present, the lower limit of the liver is still more obscure.

* Being an account of a demonstration at the London School of Tropical Medicine to members of the International Medical Congress, August, 1913.