

operation. At the end of three or four days he was taking nourishment well; the bowels were acting and from the first a good quantity of urine was secreted. The tube was removed from the bladder at the end of the week and on the 24th some urine was passed per urethram. The patient got up about three weeks later and was allowed to go out of doors on March 22nd. At times there was a good deal of phosphatic concretion about the wound which cleared up with a dressing of dilute acetic acid. After this good progress was made and the patient left the infirmary on April 7th, the wound having completely healed. Urine was passed freely per urethram; it was alkaline and contained some phosphate crystals and a few pus cells. The patient remained in good health until the end of August, 1905, getting about, and being able to walk four or five miles a day in comfort. He then became worse again with cystitis and would insist on drinking a fair quantity of whisky. The suprapubic wound broke down and in September I readmitted him to the Leeds Infirmary. He refused treatment and would not stay in. He died on Nov. 25th, 1905, from uræmia.

The calculus weighed 18 ounces 5 drachms, and this I sent to Professor Charles Stewart at the Royal College of Surgeons of England, who kindly had a section made for me, with drawings, and an analysis of the various layers (see figure). Half of the calculus is in the Museum of the College, the other half being in the Pathological Museum of the University of Leeds.

So far as I have been able to ascertain this is the largest vesical calculus which has been successfully removed and on this account I think it should be placed on record. Other large stones successfully removed are as follows:—

Harmer of Norwich	...	...	...	15 oz.
Cline	...	...	...	13 oz. 30 grs.
Mayo of Winchester	...	...	...	14 oz. 2 drms.
Cheselden	...	...	...	12 oz.
Pare (1570)	...	...	...	9 oz.

Sir Astley Cooper remarks that the largest stone he ever saw removed weighed 4 ounces and the patient died 4 hours after removal.¹

In the *British Medical Journal* of Jan. 7th, 1905, Mr. C. R. Pike of St. Vincent records the successful removal of a stone weighing 13½ ounces, and in the same journal, Feb. 18th, 1905, Lieutenant-Colonel W. K. Hatch refers to a successful suprapubic removal of a stone weighing 17 ounces from a patient under his care in India.

To me it is almost inconceivable that any human being should have a stone for at least 30 years without submitting to an operation.

Leeds.

A CASE OF CANCER OF THE OESOPHAGUS OF UNUSUAL TYPE.

By ELDON PRATT, M.D. LOND., M.R.C.S. ENG.,

With a Pathological Note by CUTHBERT LOCKYER, M.D.
LOND., F.R.C.S. ENG.

THE patient, a man, aged 58 years, by occupation a farm labourer, consulted me on July 17th, 1903, complaining of a small lump in the neck. His history was as follows. Three months previously he first noticed, quite by accident, a small lump in his neck of the size of a pea, just above the left collar bone; it was not until a month previously that he noticed the lump to be enlarging, since when it continued to increase in size. The lump, however, never caused any pain or inconvenience. Although he indefinitely felt not quite the thing for the few previous months it was not until the end of May, 1903, that he first noticed some difficulty in swallowing. He found that taking food the first thing in the morning at once gave him some pain down the front of the chest behind the breast bone; it was always some minutes before the pain ceased. Throughout the rest of the day he could take liquids and slops without causing pain, which was easier towards the evening. This sensation continued up to the time when the case came under notice. He then complained that the pain made the chest tender. He had very little appetite in the morning, but it improved towards the afternoon and the evening, when he was able to take plenty of ordinary food. He had got distinctly thinner,

he said, during the last three or four weeks. There had been no sickness or vomiting at any time nor had he had any jaundice. His bowels acted regularly, the motions being apparently normal, and he had never passed blood so far as he knew. For several months, however, he had noticed, after sitting in a cart for long, that the tail of his shirt had been discoloured as if by pale blood. (One cannot attach much importance to what a patient in this class says about his motions; it rarely occurs to country labourers to look at them, and even if they wished to see them it would be almost an impossibility, as the closet is invariably a dark wooden shed standing over a pit at the rear of the garden.) The urine for the last five or six weeks had been high-coloured but deposited no sediment. He had noticed that his left arm sometimes felt weak with a dull aching in the shoulder. At no time did he complain of any particular abdominal pain. His family history was not of much importance except to throw light upon the means by which he ultimately met his death—viz., his father died in an asylum, his mother died from old age, one brother died from inflammation of the lungs 20 years ago, and another brother was killed in an accident. His wife was healthy; they had been married 33 years and had no children. He had always enjoyed good health, except for an attack of quinsy when a boy. He had always lived in Sussex and had never had any venereal trouble; he had been a temperate man and a smoker.

The patient presented the appearance of being a big, strong, healthy, burly-looking country labourer. On undressing he seemed to be fairly well covered. His conjunctivæ showed no yellowness; his teeth were excessively bad and the tongue was covered with a slight white fur. Nothing abnormal was to be seen in the throat. In the left side of the neck, just above the sternal end of the clavicle, was a lump of the size of a walnut and very hard; it lay below the sterno-mastoid muscle, on each side of which it could be distinctly felt; it was slightly tender when pinched, causing pain in the left breast, and was fairly firmly attached to the deep tissues. The chest was somewhat emphysematous, causing the heart sounds to be distant and the cardiac dullness rather indefinite; the heart sounds were natural and regular and the pulse regular, 68 and of fair volume and tension. There was nothing abnormal in the lungs.

Upon inspection of the abdomen a distinct fulness was found below the costal margin on the right side; on percussion, the liver dullness extended up to the sixth rib and below the costal margin for a full two fingers' breadth. A somewhat indefinite mass was felt in the epigastric region, slightly tender on palpation, very resistant to pressure, and dull on percussion, the dullness being continuous with the liver dullness; the mass extended to within two fingers' breadth of the umbilicus and for two and a half fingers' breadth to the left of the middle line up to the left costal margin. The whole mass moved slightly with respiration. The rest of the abdomen moved evenly and was resonant. No lumps could be felt around the navel or elsewhere.

FIG. 1.

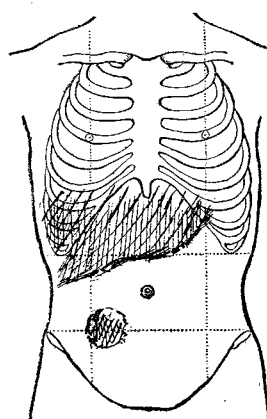


Diagram of condition on
Sept. 22nd, 1903.

FIG. 2.

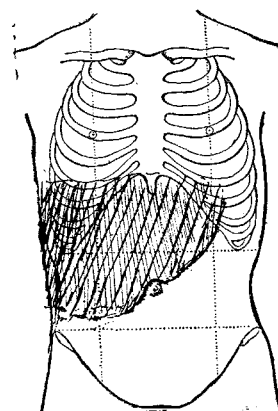


Diagram of condition on
Oct. 15th, 1903.

He had a double reducible inguinal hernia for which he was wearing a truss. Nothing abnormal could be felt per rectum; the urine, rather excessive in pigmentation, contained no abnormal constituents.

To indicate briefly the subsequent history. The patient was admitted to the Sussex County Hospital on August 1st

¹ Anomalies and Curiosities of Medicine, Gould and Pyle.

under the care of Mr. W. Furner, to whom I am indebted for permission to use the notes taken while he was in that institution. He was examined under an anæsthetic on August 10th, but nothing further was elicited. Mr. Furner held the opinion that it was a malignant growth involving the omentum and perhaps the stomach. No operation was performed nor thought advisable. During the patient's stay in the hospital his temperature was throughout subnormal and his bowels were opened daily. He was discharged on August 12th, only to be re-admitted on Sept. 10th and again on the 17th. On Sept. 22nd he was again examined under gas and ether, when the large mass could be felt in the front of the abdomen, as in Fig. 1, and a smaller, very hard lump deep down on the right side; this small lump was thought to be separate from the larger mass. The patient had been taking iodide of potassium for the last few weeks but without any influence on his condition. I saw him frequently at varying intervals; he seemed to get rapidly thinner and more and more depressed about himself. His condition on Oct. 15th showed marked enlargement of the liver and epigastric mass, as in Fig. 2, with some bulging of the right side and loin outwards. At no time was dysphagia a marked symptom. He never remained in hospital for long at a time, but (a point of some interest perhaps in view of subsequent events) he witnessed during his stay in the wards no less than three cases of "cut-throat." This means of ending one's life evidently impressed him, as he mentioned it to his wife more than once. He complained latterly of considerably more abdominal pain than he had done before; this pain he described as a horrible, dull, intolerable sort of pain, and he seemed very miserable that no operation could be done to relieve him.

On the morning of Nov. 8th, 1903, the man, influenced by an inherited predisposition to insanity, also by what he had seen in hospital, but most perhaps by the pain which he so silently and manfully bore, brought the tragedy to a close by committing suicide. I was hastily summoned to his home early on that morning to find that he had cut his throat with a razor in the garden closet. On the seat was found a brief note to his wife saying "he could not stand the pain any longer." Death must have been instantaneous.

On Nov. 9th I made a post-mortem examination. All the structures in the neck were completely divided by a gash measuring nearly five inches long. On opening the abdomen an enormously enlarged liver presented with five obvious bosses of cancer growth, the largest of these being as big as a cocoa-nut and the smallest not smaller than a good-sized Jaffa orange. There were numerous smaller nodules both on the surface and in the substance of the liver. The growths on section were softish and oozed blood. The liver weighed 150 ounces. Some of the glands in the mesentery were apparently slightly enlarged. The stomach was empty, narrow, and elongated, but was not involved in the growth. The intestines, traced carefully throughout, revealed no growth, and it was not until I had removed the liver and explored the oesophagus that the primary growth was found lying on the spine just before passing beneath the diaphragm. The primary growth was hard. The heart, lungs, brain, and other organs were natural.

Pathological note by Dr. CUTHBERT LOCKYER.—(Oesophageal growth and growth from liver received from Dr. Eldon Pratt on Nov. 14th. The specimen mounted in a museum glass jar consists of a portion of the oesophagus connected by loose areolar tissue with a part of the wall of the aorta. To the latter is attached an oval, firm growth to be described below. On the oesophageal wall are seen two sinuous shallow ulcers. The larger measures 4 centimetres by 1 centimetre; the smaller, which lies alongside the former, measures 1 centimetre by 2 centimetres. Both ulcers have a slightly raised everted edge and a smooth flat surface which is practically on a level with the surrounding mucosa, the tortuous edge being the only raised part of the ulcers, and no depression of the floor or excavation is present. In the general aspect of these ulcers there is nothing typical of epithelioma or columnar cancer. Except that the edges are not undermined the lesions are more like those of tuberculous ulceration of the intestines than any other familiar condition. The base of these lesions is made up of an infiltrating growth which forms a flattened projection, measuring 3 by 2 centimetres in area, on the external surface of the gullet. Running from this growth in the areolar tissue between it and the aorta are several large blood-vessels and lymphatics. These vascular structures run into the capsule of a hard scirrhus-looking mass

which is firmly adherent to the aortic wall. This growth measures 4 by 2 centimetres, and on section through its long vertical axis it presents a firm, greyish, uniform appearance. Sections have been made: (1) Of the edge and surface of the large ulcer on the mucous surface of the oesophagus; (2) of the infiltration in the muscular wall; (3) of the network of vessels and lymphatics between the gullet and aorta; (4) of the hard growth on the aorta; and (5) of the deposit in the liver.

Section 1.—The edge of the ulcer is composed of proliferating cubical epithelium continuous with that covering the surface of the oesophagus. This epithelium shades off into tissue which composes the surface of the ulcer. The surface of the latter is made up of epithelial new growth and round-celled infiltration, and these elements extend deeply, invading the tissues of the submucosa and the muscle bundles beneath. In the submucous tissue are therefore seen masses of spheroidal epithelial cells with large nuclei; these masses lie in broken-down alveolar spaces, the latter being bounded by infiltrated fibrous tissue, carrying vessels the walls of which are thickened.

Section 2.—Within the muscular layers of the oesophagus, deep to the ulcers and extending wide of their margins, is seen a continuation of the infiltrating growth. The character of the component cells has here totally changed, and the appearances are those of a secondary lymphosarcoma. The sarcomatous-looking cells are arranged in definite large oval masses within alveolar spaces limited by strong bands of new fibrous tissue. The cell areas contain much free hæmorrhage and elementary blood-vessels and the central parts of the larger masses are necrotic and breaking down. The muscle bundles show commencing post-mortem change.

Section 3.—Taken through the lymphatics and blood-vessels which lie in the connective tissue between the oesophagus and the aorta. It shows a small focus of growth made up of lymphoid-looking tissue arranged in definite alveolar spaces, the latter having thick fibrous walls.

Section 4.—This was taken through the growth adherent to the aorta. In macro- and microscopical features this growth resembles a scirrhus carcinoma of the breast. It is mainly composed of dense, coarse, interlacing fibrous tissue. Occupying branching longitudinal narrow clefts and also alveolar spaces within this fibrous matrix are seen definite epithelial cells with large nuclei. The cells are clustered side by side with no inter-cellular substance between them; they vary in shape. Some are columnar, others spherical, others irregular. The most uniform feature they possess is the character of the nuclei. They all show a large oval nucleus, which stains well with Ehrlich's hæmatoxylin. The nuclear protoplasm is undergoing karyokinesis. Large areas of this growth are very necrotic.

Section 5.—Taken through a secondary nodule in the liver. It shows a growth resembling a lymphosarcoma, the cells being similar to those seen in Sections 2 and 3 and totally unlike the cells seen in Sections 1 and 4. The growth is not encapsuled, but at its periphery it is spreading irregularly amidst the neighbouring degenerate liver substance. The growth is very friable and broken down in its centre and shows the presence of free hæmorrhage. The primary growth arose from the columnar cells of the oesophageal mucous membrane; nowhere can squamous epithelium be found in the neighbourhood of the edge of the ulcer and no squamous cells come into the composition of the growth. That one type of epithelium may transmute to another type is a well-recognised fact, such metaplasia having been seen again and again in the endometrium of senile uteri where the early ciliated columnar has been shown to pass into the squamous epithelial cell. The same process of metaplasia goes on frequently in carcinoma corporis uteri. But in this instance we appear to have an example of a much more complete abrogation of our commonly accepted pathological classification of neoplasms, inasmuch as the transmutability of the cells seems to have broken down the line of demarcation between epi- and mesoblastic new growths, the neoplasm appearing first as an epiblastic structure, and (following the order of its invasion) next as a mesoblastic growth, then again reverting to the epiblastic type, and finally (in the liver) assuming once more the features of mesoblastic tissue.

The obvious suggestion from this behaviour of cells in a new growth is that inasmuch as all cells are derived from one common cytological origin our present classification into epi-, hypo-, and mesoblastic new growths is purely artificial, and although we must accept it as a convenient general working

hypothesis we must be prepared to find growths which cannot be relegated to either class if we wish to understand their nature in all its bearings. In fact, our present classification may in time have to be broken down and give way, like the artificial Linnæan classification of plants had to do, to some more natural arrangement yet to be discovered.

Henfield, Sussex.

NOTES ON THE VALUE OF BACTERIOLOGICAL EXAMINATIONS OF THE BLOOD IN TYPHOID FEVER AND OTHER BACTERÆMIAS.

By FRANK GEORGE BUSHNELL, M.D. LOND.,

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THE Widal reaction for typhoid fever frequently gives in this locality indefinite reactions (i.e., slight loss of motility of bacilli and a few small loose clumps within one hour) even when the clinical diagnosis is typhoid fever, and this may be so even in the third week of the illness. The absence of agglutination may be due either (1) to defective formation of agglutinins or (2) to the infection being due to a bacillus which, though closely allied to, has specific differences from, the bacillus used to carry out the serum reaction; for example, paratyphoid infection would fail to agglutinate "completely" cultures of the bacillus typhi. I would instance a case, which compares with one recorded by Dr. T. J. Horder at the Pathological Society of London on Jan. 15th, 1907, in which the cultural identification of bacillus typhi from the blood during life confirmed the clinical diagnosis, the Widal reaction being incomplete on two occasions (once in the public health laboratory). For a long time past continental and American workers have recommended this method of diagnosis and I have been impressed by its widespread adoption in the hospitals of Canada and America. The technique to be employed is that of ordinary bacteriological examinations of the blood,¹ but it is imperative to dilute the blood well. I place 10 cubic centimetres of blood into 250 cubic centimetres of plain peptone broth (ox gall glycerine peptone, taurocholate of soda broth, &c., are used by some). I believe that the value of the agglutination test by an immune serum in establishing the identity of the bacillus in question cannot be over-estimated. The cultural tests for bacillus typhi are, in my experience, comparatively valueless, being mostly negative. Thus I have isolated from an inflamed Fallopian tube and again from the blood of a case of subacute rheumatism (with endocarditis and pleurisy) bacilli which were culturally practically indistinguishable from the typhoid bacillus.

The views now expressed were clinically illustrated by the following case already referred to. A patient, 26 years of age, was admitted into the Sussex County Hospital, under the care of Dr. Edward F. Maynard, with a history of abdominal pains, diarrhoea, and sickness, which had been becoming worse for a fortnight previous to admission. The temperature was 103.4° F., the abdomen was distended, there were rose-red spots on the abdomen and chest, the tongue was coated with streaky white fur on each side of the middle line, the motions were greyish-white and loose, and the spleen was palpable on deep inspiration. Tenderness and doughiness were present and were especially marked in the right iliac fossa. Some moist crepitations were heard over both sides of the chest. The heart sounds were feeble and there was no murmur; the urine gave Ehrlich's reaction; it contained no albumin. The blood on Dec. 17th, 1906, gave an "indefinite" Widal reaction in 5 per cent., 2 per cent., and 1 per cent. dilutions in 45 minutes, with small clumps and loss of motility in some bacilli. (A previous Widal test was negative.) Bacillus typhi was not found among the numerous bacteria present in the sputum. The blood taken four days before death contained numerous bacilli of the coli-typhoid group, which culturally were examples of the bacillus typhi. The colonies which grew on the Conrad-Drigalski medium were blue; acid was formed in maltose and glucose but no gas; sucrose litmus was not reddened; lactose was untouched in one tube and in another was faintly acidified; neutral-red broth and McConkey's agar medium were unaffected.

¹ Eyre's Bacteriological Technique.

[Neither typhoid bacilli nor those intermediate between them and colon bacilli can ferment lactose even to the extent of acid formation. Both typhoid bacilli and the intermediates can ferment glucose and other mono-saccharids, the former without, and the latter with, production of gas.²]

The patient became comatose and died on Dec. 23rd. The necropsy made on the 24th showed numerous typhoid ulcers with swelling of the solitary follicles of the small intestine. The spleen, kidneys, and liver showed cloudy swelling. Cultures were made from the heart's blood, spleen, jugular vein thrombus, gut, and urine. The blood from the heart and spleen gave typhoid-like cultures; the others fermented lactose with formation of gas, showing that the bacillus coli was present. The patient's blood obtained before and after death did not agglutinate completely these bacilli. Microscopically, the liver showed multiple focal necrosis with thrombosis of the interlobular branches of the portal vein; the kidney contained numerous bacilli, and the ulcers were of the typhoid type.

The power of fermenting lactose exhibited by these typhoid bacilli, though slight, is noteworthy as being unusual. In view of the absence of gas formation in the glucose tubes the bacilli were not paratyphoid, which are supposed to give rise to a comparatively mild infection.

Brighton.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON THE ACTION OF CERTAIN REMEDIES IN A CASE OF GONORRHOEAL OPHTHALMIA.

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THE case was that of a recently born infant in whom, as I was informed by the mother, a purulent discharge from the eyes was first noticed to be present on the evening of the third day after birth. When I first saw the case on the fifth day the disease was then well developed, the only treatment that had been adopted up to my arrival being the dropping into the eyes of cow's milk which, unless the lactic acid bacillus has an inhibitory action upon the gonococcus possibly afforded a good culture medium for the last-named micro-organism. The discharge being both copious and purulent I commenced treatment by hourly washings of the enormously swollen conjunctival sac with a saturated solution of boric acid; and after attending in person some four times that day, in order to assure myself that the relatives were capable of using the syringe in such a fashion as not to cause damage, I left them with strict injunctions not to fail night and day with these irrigations. I must add also that on each of these four occasions I instilled into the eyes a few drops of a 25 per cent. solution of protargol, after the manner of Darier. On the next morning the condition was about the same, the lids being so swollen that it was hardly possible to get a look at the interior of the eye; but, as far as could be judged, although the bulbar conjunctiva was dusky red and swollen, the cornea was quite clear as yet. Finding that the remedies were apparently being used intelligently I substituted a 1 in 4000 solution of mercuric perchloride for the boric acid and as before instilled the protargol, though I was not satisfied that it had produced any effect on the morbid process.

On the morning following the use of the perchloride I was greeted with the remark that the eyes had improved a little; "the new lotion suited them better," was the way it was put, and certainly on looking at them I think it was possible to determine that their condition was slightly bettered. Being very dissatisfied with the action of the protargol—seeing that what little improvement there was had to be ascribed to the perchloride—I swabbed out the eyes with a solution of silver nitrate (10 grains to 1 ounce) with confidence that I should witness a change such as former experience had led

² B. H. Buxton: Journal of Medical Research, vol. iii., No. 1, pp. 201-230, 1902. Savage: Bacteriological Examination of Drinking-water, 1907. E. Libman: Johns Hopkins Bulletin, vol. xvii., No. 184, July, 1906.