red corpuscles have seriously diminished in number but the hæmoglobin index has been increased and other signs of pernicious anæmia have developed. Another change in this case worth noting was the beginning of cirrhosis of the liver, this being probably due not only to infection of the bile passages but to the retention of stagnated bile in the ducts. This is also a common sequence, not only of pancreatitis causing biliary obstruction, but also of gall-stones in the common duct and other disease producing biliary obstruction.

This case affords another example of the benefit of surgical treatment in interstitial pancreatitis and is only one of a considerable number of cases that I have operated on since I published a series of over 40 operations for this condition in my Hunterian lectures at the Royal College of Surgeons last year.

PS.—The patient is at the date of publication of the paper in perfect health.

Park-crescent, W.

THE SURGICAL TREATMENT OF TUBERCULOUS GLANDS IN THE MESENTERY.¹

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DURING the last decade it has been the credit of surgery to have shown that many cases, hitherto relegated to the physician and to the pathologist, could be submitted to operation with reasonable hopes of cure or relief. In this communication examples will be adduced to show that the removal of tuberculous glands from the mesentery of the intestine can be followed by complete success; and in conclusion, to show the danger of delay, a case will be quoted which was submitted to operation too late, the glands having led to a general infection of the body, miliary tuberculosis. An authority, quoted later, has pointed out that the mesenteric glands are the second most frequent source of general tuberculous infection of the body. The successful cases and the fatal case brought before you demonstrate that there is yet another field in which surgery can confer its benefits on mankind. A judicious caution must temper our enthusiasm in selecting cases. Experience shows that these glands must form a palpable mass before they should be submitted to surgical treatment. Great care must be exercised in distinguishing tumours due to tuberculous peritonitis from those due merely to tuberculous glands. A child with a moveable tumour in the abdomen, not fæcal, should be submitted to operation. Medical treatment must be pursued throughout. Mesenteric tuberculous glands are by far more frequently found in children than in adults. Professor G. Sims Woodhead² found them in 78·7 per cent. of necropsies on tuberculous children—in 11 per cent. the mesenteric was the only lesion present; Dr. W. S. Colman³ found them in 66 per cent. of tuberculous necropsies; and Dr. J. Walter Carr⁴ in 54 per cent. Most recently Dr. W. P. S. Branson⁵ found that 22 per cent. of his necropsies, made in the study of abdominal tuberculosis, had this lesion alone. There is therefore a good percentage of cases which the surgeon may cure.

Before introducing to you my cases of surgical interference for tuberculosis of the mesenteric glands it is desirable that some epitome should be made of what is known about the subject generally, as illustrated by the text-books. Professor W. Osler of Oxford says that slight tuberculosis of the mesenteric glands is common in children; it can often be found accidentally post mortem, the lesion which produced it in the meantime having got well and disappeared, but

he makes no mention of the possibility of their being amenable to surgical treatment. This omission is easily accounted for by the fact that Professor Osler's text-book is written for and from a physician's point of view. Sir Frederick Treves, to take a surgeon's opinion, mentions that he has operated on three cases, once in an adult; that others have in "many instances" shelled out these tuberculous glands, and, finally, he has seen them diminish in size after a simple exploratory incision, somewhat in the same way that tuberculous peritonitis is known to subside sometimes after a laparotomy. The other text-books add nothing further to our knowledge, if they mention the affection at all. The most recent contribution to the subject is that of Dr. Branson in the Transactions of the Royal Medical and Chirurgical Society for 1905. He says "that they might be more frequently found than they are I have no doubt, for they are not very infrequent as post-mortem curiosities [the reference is to 'large caseous mesenteric glands'] but (during life) in such cases the process is latent and attracts no attention to the belly, though it is far from unimportant, since it may determine a general infection at any moment." He found that 22 per cent. of his necropsies showed no sign of tuberculosis except in the mesenteric glands. He sums up his clinical experience in the words: "With regard to diagnosis it may almost be laid down that hard moveable tumours in the belly of a child which are not fæcal are caseous mesenteric glands."

I shall bring before you some cases which will illustrate the alternative diagnoses arrived at in the clinical aspect of these cases, painting the clinical pictures of an affection which has been known hitherto only pathologically.

1. Tuberculosis of mesenteric glands is found most frequently in adults affecting the lymphatic glands which drain the appendix or the ileo cæcal region. Though I have no intention of quoting specific examples, this class of case must be referred to. In my lectures delivered at the Royal College of Surgeons of England in 1904, it was pointed out that the cæcum was the second place of rest for food in the alimentary canal, the stomach being the first. Moreover, the cæcum is the situation which a hundred- or thousand-fold contains more micro-organisms than any other part of the intestinal tract. These two points, the delay in the passage of the food and the presence of organisms, lead to the presence of lymphoid tissue in the cæcal region as a protective measure, and of its inflammation, appendicitis.⁶ Thus there are three reasons why the lymphatic glands in this situation should be those most frequently affected—namely, the delay in the passage of the food material, the presence of organisms, and the presence of inflammation. In operating on the appendix enlarged glands have been frequently found either in the mesenterium itself or at the ileo cæcal junction which have turned out to be caseous or partially cretified. It is a most curious fact that suppuration is very uncommon in the mesenteric glands. Even in a septic disease like acute appendicitis with abscess, suppuration is exceedingly rarely seen. The most probable explanation seems to be that the abdominal lymphatic glands which drain the intestinal tract become tolerant and inured to the products of bacterial action, so that they are very rarely excited to the pitch of suppuration.⁷

2. Four of my cases are children, but the first to be quoted will be that of an adult. Such cases must be rare, but this is one of such extraordinary interest that no apology is needed for bringing it before you. The diagnosis made was that of "functional disturbances" after that of renal calculus had been ruled out of court. The man then left the hospital in high dudgeon, taking his own discharge; but his pains compelled him to return in about a fortnight. This case illustrates that a caseous gland in the mesentery can produce apparently functional complaints in the abdominal region and in this particular instance its removal led to a perfect cure. From the point of view of the interpretation of skiagraphs there is a particular interest, as a shadow of a caseous and partially calcareous gland was obtained on a plate in the situation of a possible renal calculus.

CASE 1. *Tuberculous gland of the mesentery; operation; recovery.*—The patient, a man, aged 41 years, was admitted to St. Thomas's Hospital in August, 1904. There was nothing of importance in his family or past history.

¹ A post-graduate lecture delivered at the Children's Hospital, Great Ormond street, on Nov. 16th, 1905.

² Reports of the Laboratory, Royal College of Physicians of Edinburgh, 1888.

³ Brit. Med. Jour., vol. ii., 1893, p. 740.

⁴ Transactions of the Medical Society, 1894, vol. xviii., p. 288.

⁵ Transactions of the Royal Medical and Chirurgical Society, 1905.

⁶ Clinical and Pathological Observations on Acute Abdominal Disease, pp. 33-37, 1904. Constable and Co.

⁷ Surgery of the Diseases of the Vermiform Appendix, 1904, pp. 43-44. Constable and Co.

With regard to the present illness he complained of many obscure symptoms; such as that six months previously he had suffered from pain in the urethra during micturition and in both groins afterwards. Three months later he had pain which he located at the tip of his sacrum and which prevented his sitting down. It was relieved by rest. At the date of admission he complained of pain about the right kidney and palpitations. On examination no trace of disease could be found in the chest or abdomen. The urine was alkaline and contained mucus. A skiagraph taken by Mr. A. H. Greg showed a shadow opposite the third lumbar vertebra which might suggest a renal calculus. Nothing else abnormal was found. After a consultation with my colleague, Dr. C. R. Box, it was decided that the complaints were "functional" and that the treatment should be directed to that end. The patient got knowledge of this decision and felt so insulted that he insisted on taking his own discharge. He left the hospital on August 27th. After this the pains continued and compelled the man to seek further advice. Curiously enough, he returned to the same hospital, where, from his point of view, he had been so badly treated. This was felt to be a strong argument in favour of the case being other than purely "functional." He was readmitted on Sept. 9th. Urethral sounds were passed easily, there being neither stricture nor "enlarged prostate." After a further consultation with Dr. Box it was decided to explore the abdomen, although nothing could be found in the way of physical signs to account for his symptoms. On the 16th, under ether, an incision was made over the right rectus muscle, which was split, and the abdomen was opened. The cæcum was delivered and the appendix was found to be very thin and atrophied. It was removed. On further exploration a lump was felt in the mesentery over the third lumbar vertebra, about the situation where the skiagraph had shown a shadow. When examined this was found to be a caseous tuberculous gland. Having packed it round with gauze it was incised, the caseous material was removed, and the walls were curetted. The gland was of about the size of a large walnut. The walls were then invaginated with silk stitches and the cavity left by the removal of the caseous matter was obliterated. The abdominal parietes were sutured with the greatest difficulty, the patient vomiting and tearing out any stitches which had been inserted. The wound healed by first intention, but in view of the poor suturing of the abdominal wall he was kept for three weeks on his back. All his pains had been cured and he was discharged on Oct. 10th. Since leaving the hospital he has put on weight, led an active life, and has had no return of his old complaints. He has developed a ventral hernia through the scar, as was feared. When seen a year after the operation he was very pleased with the result.

The case just related illustrates the co-existence of an atrophic appendix and a large caseous gland in the mesentery of the small intestine. It is possible that they represent indirectly the primary and secondary effects of the same disease. The tuberculous lesion in the intestine may have left no other mark behind it than the atrophic appendix.

3. The next case to be related illustrates active disease of the appendix and many tuberculous glands in the mesentery instead of a passive atrophic appendix and one gland. It may be that this case shows a condition somewhat similar to that in which the patient in the first and older case was in his youth. If this is so the second case is instructive as the glands have subsided since the operation.

CASE 2.—*Tuberculous glands in the mesentery; appendicectomy.*—The patient, a boy, aged 11 years, was admitted to the Hospital for Sick Children, Great Ormond-street, on June 15th, 1905. Three years ago he had an attack of pain in the right iliac region accompanied by vomiting. He went to St. Bartholomew's Hospital, was kept there for 11 days, and was then sent home. Since then he had had several attacks of a similar nature, the last a few weeks previously. Mr. E. Rumley Dawson of Leyton said that the boy had appendicitis and sent him to the hospital. The operation took place on June 20th. The abdomen was opened by the method of displacing the rectus muscle inwards. The cæcum was delivered and the appendix was found to be very long and bound down by its mesentery in such a way that its lumen was obstructed. It was clamped and removed. Numerous small tuberculous glands were found in the mesentery of the small intestine which were not touched. The abdominal wall was sutured with silk and healed by first intention. The boy left the hospital on July 7th. Mr. Dawson writes on Oct. 19th:

"Since the operation he has been quite well and I feel sure that his enlarged glands were due to his chronic appendical trouble and have now subsided. All his trouble dated from his first attack of appendicitis and has ceased with the removal of that organ."

4. The third case was that of a boy with whom the diagnosis rested between tuberculous glands in the mesentery and sarcoma. The glandular disease, as it turned out, was very extensive, reaching to the extreme root of the mesentery. The patient has improved in a wonderful way since their removal. At the commencement of his trouble, besides loss of flesh and depreciation of general health, jaundice was the symptom which caused the parents to think that something serious was wrong and made them take the boy to a medical man who discovered the mass in the abdomen. The jaundice may have been due to the action of some toxin on the liver itself or may have been due to the partial obstruction of the bile-duct by enlarged glands. The stools contained bile, showing that such obstruction must have been incomplete. The jaundice cleared up a few days after the operation and was probably toxic in origin.

CASE 3. *Tuberculous glands in the mesentery; operation; recovery.*—The patient, a boy, aged six years, was admitted to the Hospital for Sick Children on August 3rd, 1903. He had had measles when 11 months old, chicken-pox when four years old, and scarlet fever 12 months previously. His father and mother were healthy. With regard to the present illness he had been noticed to have a yellow colour for the last four days, his appetite was bad, he felt drowsy and sick but did not vomit or retch; his bowels were regular. He was a well-nourished and well-developed boy, with slight malar flush and yellowish sclerotics. There was a bright yellow tinge of skin on the front of the chest spreading laterally. No œdema was present. A slight swelling was to be seen over the appendicular region; there was no redness of the skin or dilated venules. On palpation a well-defined somewhat rounded mass could be felt in the region of the cæcum of about the size of a cricket ball; the upper limit reached to the level of the umbilicus, the outer to the mid-Poupart line, the lower to the level of the anterior superior iliac spine, and the inner to the linea alba. The swelling was definitely moveable, much more so inwards. It occupied a part of the umbilical region extending into the right iliac fossa and lumbar regions. There was some tenderness on palpation, and small nodulations were to be felt on its anterior surface. Per rectum, the bowel was ballooned very high up; the finger could just touch the lower pole of the swelling which was rounded, firm, and presented a small nodule. The liver extended one finger's breadth below the costal margin. The spleen was not enlarged. Other systems were normal. The urine contained bile pigment but no albumin or blood. An operation was performed on August 11th. An incision was made over the swelling near the outer border of the rectus, the muscle was drawn inwards, and the peritoneal cavity was opened. The omentum was anterior to the mass and adherent to it. After gradually stripping this off a large rounded mass of the size of a cricket ball was found lying in the mesentery, adherent to the cæcum, the ascending colon, and partly to the transverse colon. During manipulation a weak spot in the wall of the swelling gave way, tuberculous caseous pus escaping. An incision was made into the abscess cavity which had very thick walls, the greater part of which was cut away, the remainder being curetted. The cavity extended upwards and inwards towards the root of the mesentery and contained much tuberculous debris in an advanced stage of caseation. The cavity was closed with two rows of silk sutures after thorough irrigation with saline solution. The abdominal wound was closed in layers. The patient was put to bed with a very good pulse and colour, having stood the operation well. The wound healed by first intention. The jaundice, probably toxic in origin, disappeared in a few days. On Sept. 9th he was transferred to the convalescent home, Cromwell House, Highgate, where he improved rapidly. He has been seen several times since then and has grown strong, put on flesh, and maintained the improvement in every way. It is now about two years and three months since the operation. On Nov. 13th, 1905, he was shown to the Medical Society of London, the picture of health with a perfectly sound scar.

5. The fourth case is of particular interest on account of the occurrence of colicky pains. These and the looseness of

the bowels suggest that there was, or had recently been, some active tuberculous enteritis. In most of these cases the intestinal lesion had disappeared by the time that the glands were palpable on abdominal examination. Just as is the case with the tonsil and tuberculous glands in the neck there is no sign of tuberculous disease in the former. As compared with the other cases the disease was far more extensive in this boy than in any of the others.

CASE 4. *Tuberculous glands in the upper part of the mesentery; operation; recovery.*—The patient, a boy, aged 12 years, was admitted to the Hospital for Sick Children in August, 1904. For the previous eight or nine months he had been anæmic and losing flesh, though eating plenty. About three months previously he began to have sharp attacks of pain in the middle of the lower part of the abdomen which lasted usually less than half an hour, coming and going away quite quickly. They were not accompanied by vomiting or sweating. There was no micturition trouble; the bowels were inclined to be loose. For some months he had very occasionally had a few streaks of blood in his motions. Previously to this illness his health was very good. He had had measles, whooping-cough, and chicken-pox. There was no tubercle in his family history. On examination, a moveable tumour of the size of an adult kidney was present in the left loin and epigastrium. There was no resonance in front of it. The urine was quite normal. The diagnosis of tuberculous glands in the mesentery was made. The abdomen was opened through the upper part of the left rectus and the peritoneum incised. Caseous tuberculous glands in the mesentery formed a large tumour which extended into the left hypochondrium and loin. The peritoneal cavity was packed off and the mesentery incised on both sides; the glands were shelled out and curetted. The abscesses had burrowed extensively. Gauze drains were inserted in each side of the mesentery and the abdomen was partially closed. The wound healed excellently and the boy was transferred in December to the convalescent home at Cromwell House, Highgate, where he improved rapidly. He has been seen several times since and has gained much weight. When shown to the Medical Society of London on Nov. 13th, 1905, he was much improved but still had occasional and unexplained attacks of diarrhoea.

6. The next case is quoted certainly not to illustrate the success of operation or its failure but to point out the end of these cases of caseating tuberculous glands in the mesentery if not treated surgically. It points to what might have been the termination of the other cases if they had not been operated on.

CASE 5. *Tuberculous glands in the upper part of the mesentery; operation; death later from miliary tuberculosis.*—The patient, a boy, aged 12 years, was admitted to the Hospital for Sick Children in July, 1903. He had been ailing for some months but had been ill the last week with vomiting and looseness of the bowels. The stools contained much mucus but no blood. His abdomen was rather distended, rigid, and tender, and presented a tumour beneath the upper part of the left rectus muscle. The possibility of an intussusception was discussed but thought not to be present. The child was watched for a few days without any improvement taking place. The possibility of meningitis was considered but as he was obviously going downhill it was decided to explore the abdomen. The abdomen was opened through the upper part of the left rectus, the tumour being isolated with gauze. The mesentery was then incised and the glands were shelled out and curetted. The mesentery was sewn up and the abdomen was closed without drainage. The patient improved a little but after a few days the meningitic symptoms became more pronounced. In a few weeks he died and the necropsy revealed general miliary tuberculosis.

This last case illustrated the general infection of the body with tubercle from the mesenteric glands. Dr. Branson says: "Excepting only the bronchial glands, caseation of the mesenteric glands is the most frequent promoter of tuberculous meningitis." The diagnosis made in this case is also of interest—subacute intussusception. The fatal result was assured before operation, but, arguing in the light of the previously recorded cases, it is obvious that had the child been submitted to the surgeon previously, he would not or, more modestly, need not have died.

Dr. Branson, in the paper already referred to, says "the removal of these softened glands from the mesentery would remove a standing menace to life and I submit this alternative to the judgment of practical surgeons." The cases mentioned in this lecture have answered Dr. Branson that

these glands can be removed and the operation followed by cure. A mere laparotomy, though frequently taught to be useful in these cases, is a half measure and is not followed by success.

Finally, I hope the narration of the successes, failures, and natural results contained in this lecture will have conveyed to you the fact that there is a stage in cases of abdominal and mesenteric tuberculosis which is amenable to surgical treatment and to no other. If this moment is allowed to pass by then the patients will surely die.

ADDENDUM.

A further and most important question arises from this lecture—namely, the relation of tuberculous peritonitis to the cases of caseous mesenteric glands which are suitable for operation. In the first place, tuberculous peritonitis is recognised in four forms: (1) a dry form often accompanied with the formation of adhesions; (2) a wet form accompanied by ascites; (3) an ulcerative form in which caseous foci are found amongst adherent coils of intestine; and (4) the suppurative, which is simply one of the previously mentioned varieties with the addition of pyogenic organisms, so that it need not be further considered. Tuberculous mesenteric glands are always found in association with tuberculous peritonitis in all its forms. But tuberculous mesenteric glands are found without any tuberculous peritonitis. In the former case they are distributed, perhaps sparsely, over a large area. They do not form the large moveable masses such as were described in the third, fourth, and fifth cases in the lecture. The tuberculous glands which form these masses are the result of tuberculous enteritis, not peritonitis. The enteritis was illustrated in Cases 4 and 5 who had diarrhoea with the passage of blood and mucus. The third case gave no such history. And, indeed, it is not necessary. Dr. Sidney H. C. Martin⁸ fed some guinea-pigs with tuberculous sputum and found that they had tuberculous infection of the mesenteric glands without any intestinal lesion. This may have occurred in Case 3. The moveable palpable masses of caseous mesenteric glands are probably produced in these ways. The palpable tumours of tuberculous peritonitis are formed by adherent coils of intestine or omentum which may contain a caseous focus or not. These tumours are only exceptionally moveable. The mobility or fixity of an abdominal tumour becomes a matter of the greatest importance. An example of this observation was made on a little girl who had suffered from tuberculous peritonitis for some time. She had a tumour in the lower and left side of the abdomen. It was immovable. In spite of the raised temperature, &c., it was advised that nothing should be done. The result justified the opinion, as in a short time the temperature became normal and the child began putting on flesh. It is most advisable that the distinction between these two kinds of tuberculous tumours should be made, as the prognosis and treatment are very different. If a caseous focus of tuberculous peritonitis is opened, as it must be occasionally, the results are often extremely unsatisfactory, the patient often ending his life in pain and misery with a fæcal fistula, whilst if suitable cases of tuberculosis of the mesenteric glands are selected for operation gratifying results may be expected.

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CARCINOMA OF THE TESTICLE.¹

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MALIGNANT disease of the testicle has generally been described by pathologists as occurring either as a sarcoma of what is often a somewhat peculiar type or as a glandular spheroidal-celled carcinoma which is usually referred to as being of the "encephaloid" type, and it is usually represented that of these two forms of malignant disease sarcoma is that which much the more frequently affects this gland.

Columnar-celled carcinoma of the testicle would seem to be an extremely rare form of malignant disease if one judges

⁸ Allbutt's System of Medicine, vol. iii., p. 660.

¹ A paper read at a meeting of the Pathological Society of London on Dec. 5th, 1905.