too high, but more especially during the first decade. Thus, of 60 cases of spinal disease under 10 years of age treated as out-patients only 9 suppurated while under my observation. This increasing severity of the disease in joint cases as age advances is no doubt to a large extent due to the increasing proportion of cases in which the disease commences primarily in the bone, and also the greater frequency of sequestra over soft caseating deposits.

Sex is another important factor. Thus, in our 386 patients under treatment in hospital, 251, or 65 per cent. were males, and 135, or 35 per cent., females. This is a fact which is noted by most authors, although the relative percentages of the two sexes may be somewhat differently given. In the case of the spine the statements are the most contradictory. The relation of the sexes varies at different ages, as is readily seen on referring to the former table. Thus, of the total number of cases admitted, 11.3 per cent. were males and 8.8 per cent. were females at or below 5 years of age, etc., females being thus distinctly less susceptible than males, but especially so above 10 years of age. The predisposition of the sexes to disease also varies according to the joint in question, as seen in this table, where (excepting the shoulder-joint, where the number of cases was too few) we see that the numbers most nearly approach each other in the case of the knee-joint, 57.6 per cent. being males and 42.4 per cent. females, and are farthest apart in the case of the tarsus, where 85.8 per cent. are males and 14.2 per cent. females.

	Hip.	Knee.	Ankle.	Tarsus.	Shoulder.	Elbow.	Wrist.
Males ...	59.7	57.6	81.9	85.8	50	74.3	75.9
Females ...	40.3	42.4	18.1	14.2	50	25.7	24.1

Further, it appears that the disease is more grave in males than in females, and that to some extent independently of age or injury, whether we test the matter by the severity of the measures required for cure, by the results of treatment, or by the frequency of suppuration. This is a point which is not referred to, so far as I have seen, by other writers, although some—such as Albrecht—give tables of the methods of treatment employed in the two sexes, and these tables show a larger proportion of cases treated by the expectant method, and a smaller proportion of cases treated by excision and amputation in females than in males. This fact would, however, correspond with the less susceptibility of females to the disease, diseases when they occur in individuals but little susceptible being, as a rule, milder than when they attack the highly susceptible.

Among other general predisposing conditions are those which have led to the belief in the heredity of tuberculous disease. I have previously said it must, in my opinion, be extremely rare that the disease itself is inherited; nevertheless, it is more apt to occur and is more severe in families where there is a tendency to the disease, as indicated by its occurrence among several members, this tendency not being altogether accounted for by increased opportunity for infection. It is, however, not the disease itself but the peculiar collection of conditions which render the parent liable to infection which is transmissible to the offspring. Where these conditions are present and fully developed the bacilli naturally get an easier and a firmer foothold, and grow more luxuriantly than in other individuals, and the disease is thus correspondingly graver. Scrofulous children are more predisposed to the occurrence of tuberculosis because the tissues, apart from their peculiar tendency, are less strong and active, seeing that the children are usually delicate, and are thus more confined to the house and to badly ventilated rooms, etc., than healthy children. These, or similar conditions of the tissues, may also be induced by poverty with its attendant evils. The bad hygienic conditions under which poor children live, their confinement to badly ventilated rooms or to the foul alleys of large towns, the deficient quantity and bad quality of their food, etc., are all factors which deprave the constitution, and render it less able to resist the attacks of any parasitic disease. There is also some reason to suppose that apart from the poor quality and deficient quantity of the food, its chemical constitution is of some importance,

and notably that an excess of vegetable food is bad. As regards food, Bidder, in speaking of the treatment of these diseases, lays great stress on the avoidance of substances rich in potash, and also of starchy materials, and strongly advises the employment of albuminous foods rich in soda and fat. A probable confirmation of this view is the noteworthy fact that tuberculosis is, as a rule, very common, in herbivorous animals, and can usually be readily induced in them, while, on the other hand, it seldom occurs in the carnivora. Man, who employs a mixed diet, stands midway between these two groups in his susceptibility to this disease, tuberculosis being more often local and less virulent than in the herbivora, while it is much more frequent and destructive than in the carnivora. In this way also Bidder explains the much greater frequency of tuberculous diseases in the western part of Germany than in the eastern, although the density of the population is greater in the latter. It appears that the inhabitants of eastern Germany employ less vegetable diet than in the west, and eat large quantities of salt meat.

THE TREATMENT OF LARGE TUBERCULOUS ABSCESS ASSOCIATED WITH BONE DISEASE BY EVACUATION AND INJECTION WITH A SOLUTION OF IODOFORM IN ETHER.¹

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THE following series of cases is given to illustrate the method of treating cold abscesses due to bone disease by evacuation with an aspirator or trochar, and injection with an ethereal solution of iodoform. Those will best appreciate this simple method who have seen many cases treated in the ordinary ways, or by the method of opening and draining antiseptically. The latter treatment is practically impossible to carry out in most general hospitals, as very few infirmary boards will allow their beds to be occupied by patients who will not only possess them for one, two, or more years, but who require very careful dressings, which, although not individually expensive, amount in the long run to a serious item. I have now been following out this line of treatment for about six years, during which time I have had a considerable number of cases both in hospital and in private practice; and, where it has been carried out systematically, I have been very well satisfied with the results, both immediate and remote. For the notes of the cases I have to thank my successive house-surgeons, Mr. B. G. A. Moynihan, Mr. F. Hudson, and Mr. Sellers.

CASE I.—T. K., aged 9. Admitted July 14th, 1885. Had been in hospital on several occasions on account of spinal caries with curvature. On admission, a large lumbar abscess had developed on the left side.

July 18th. Aspirated, 3 ounces of thick pus removed.

July 30th. Aspirated, 5 ounces of thick pus removed; cavity injected with iodoform and ether.

August 10th. Aspirated, 4½ ounces of pus smelling of iodoform removed; nearly 1 ounce of iodoform and ether solution injected.

September 15th. Made an out-patient, wearing a spinal support. Appeared to be quite well, and showed no sign of re-formation of abscess. Patient not seen again.

CASE II.—A. J. H., aged 21. Admitted March 26th, 1887. A year ago noticed a swelling 4 inches below the right scapula. Present condition: Large fluctuating swelling in lumbar region; curvature of spine in mid-dorsal region.

March 31st. Aspirated, 12 ounces of pus removed; cavity injected with ½ ounce of iodoform and ether solution.

April 6th. Nine ounces of pus removed, ½ ounce of iodoform and ether solution injected.

April 21st. Four ounces of pus removed, ½ ounce of iodoform and ether solution injected.

¹ Read before the Yorkshire Branch of the British Medical Association at Barnsley.

May 5th. Four ounces of pus removed, $\frac{1}{2}$ ounce of iodoform and ether solution injected.

May 12th. Four ounces of coffee-coloured pus, smelling strongly of iodine, removed, and cavity injected again.

May 24th. Two ounces of coffee-coloured pus removed; cavity not injected.

June 7th. Returned home wearing a poroplastic jacket. Cavity seemed quite empty, and patient appeared well. He attended from time to time for a year, the pus never reformed, and, when last seen, he had given up his spinal support, and was quite well.

CASE III.—S. E. G., aged 29. Admitted June 9th, 1887, for angular curvature of the spine and psoas abscess. First noticed between two and three months ago; much larger during last month. Had pain in hip since last confinement two years ago. Three months after confinement noticed a lump over the spine, and was obliged to walk with a stick; no history of injury. Present Condition: Large fluctuating swelling in the upper part of the right thigh, extending over outer and inner sides and front of the thigh, constricted in the middle over the femoral vessels. Angular curvature of the spine implicating the three lowest lumbar vertebrae. General health not good.

June 16th. Abscess aspirated. Creamy pus removed.

July 14th. Eleven ounces of thin creamy pus removed, no pain, general health improved.

August 5th. Slight collection of pus (?) Plaster jacket applied.

August 8th. Returned home.

October 25th. Readmitted. Cavity again filled up.

October 27th. Twenty-seven ounces thin, yellow, sweet pus removed. Cavity injected with half an ounce of iodoform and ether solution.

November 24th. Eight ounces of sanio-purulent fluid removed. Half an ounce of iodoform and ether solution injected.

January 5th. Abscess aspirated on outer side of thigh. One ounce of iodoform and ether solution injected.

January 24th. No re-collection of pus.

February 4th. Poroplastic jacket applied. Made an out-patient. Attended occasionally as an out-patient; the abscess did not form again, and the patient when last seen appeared to be well, although not strong.

CASE IV.—S. D., aged 31. Has had pain in dorso-lumbar region for three years, increased by exercise, particularly stooping. Had noticed a swelling in the groin for six weeks. Diagnosis: Psoas abscess depending on spinal caries, with curvature in dorso-lumbar region. Treatment: Rest in bed for first month, and afterwards a spinal support.

April 19th, 1888. Aspirated, 24 ounces of thick curdy pus withdrawn.

April 26th. Aspirated, 19 ounces of thick curdy pus withdrawn.

May 3rd. Aspirated, 19 ounces of thick curdy pus withdrawn, and cavity injected with 1 ounce of iodoform and ether solution.

May 24th. Aspirated, 8 ounces of thin pus removed, and 2 drachms of iodoform and ether solution injected.

July 19th. Four ounces of clear yellowish fluid removed, and 4 drachms of iodoform and ether solution injected.

August 25th. No return of pus. Abscess completely healed. Made an out-patient. When seen a year afterwards he was quite well, and there had been no return of the abscess.

CASE V.—T. S., aged 8. Noticed swelling for six weeks. No signs of spinal caries. No pain or tenderness over vertebrae. No pain or percussion on movement of head. No pain on pressing iliac bones together. Diagnosis: Iliac abscess, probably due to caries of ilium. The abscess presented internally to, and a little above, the right anterior superior spine.

April 26th, 1888. Aspirated, 8 ounces of thick flaky pus withdrawn.

July 13th. Aspirated, 8 ounces of thick flaky pus withdrawn.

July 19th. Aspirated, 6 ounces of thick flaky pus withdrawn, and cavity injected with 2 drachms of iodoform and ether solution.

July 26th. Aspirated, 3 ounces of thinner pus withdrawn, and 2 drachms of iodoform and ether injected.

August 5th. Three ounces of clear straw-coloured fluid withdrawn.

August 28th. No return of fluid. Sent to a convalescent home.

October 19th. No return of pus. Patient apparently well. When seen some months afterwards there had been no return of the abscess.

CASE VI.—R. L., aged 6. Spinal caries in lower dorsal region for twelve months. Abscess on inner side of thigh and over great trochanter noticed a month ago. The abscess surrounded the hip-joint, limiting its movement and giving appearance of hip-joint disease. Diagnosis: Psoas abscess depending on caries of spine. An abscess of large size could be felt in the iliac region in the thigh, to the inner side of the vessels and over the great trochanter. Treatment: Rest for two months and spinal support.

June 28th. Aspirated, 6 ounces of thick curdy pus withdrawn.

July 19th. Aspirated, 4 ounces of thick curdy pus withdrawn, and 4 drachms of iodoform and ether solution injected.

August 18th. Four ounces of thin pus withdrawn, and 2 drachms of iodoform and ether solution injected.

August 29th. Three ounces of thin pus withdrawn, and 2 drachms of iodoform and ether solution injected.

September 6th. Three ounces of clear fluid withdrawn, and 2 drachms of iodoform and ether injected.

On September 20th the abscess had partially reformed, and was so near the surface, the skin being thinned, reddened, and inflamed, that a small incision was made, about 2 ounces of almost clear fluid being let out from a superficial cavity, and the wound dressed antiseptically. Antiseptic dressings were reapplied until October 16th, when the wound had perfectly healed, and there was no return of the pus. The patient remained well, and when seen some months afterwards there had been no return of the abscess.

CASE VII.—G. A., aged 63. Admitted December 7th, 1888, with psoas abscess. Nearly two years ago he had pain in the small of the back. Five months ago he first noticed a swelling in the left femoral region.

December 13th. Aspirated, 7 ounces of thick pus removed. Injected with half an ounce of iodoform and ether solution.

January 6th, 1889. Fitted with a jacket made of steel covered with wash leather.

January 8th. Made an out-patient at his own request.

January 23rd. Readmitted. Slight reaccumulation of pus.

January 24th. Injected with 2 drachms of iodoform and ether solution.

He attended as an out-patient for a time, and, as there was no fresh collection and he had no pain, he considered himself, and appeared to be, well.

CASE VIII.—E. S., aged 11. Admitted November 25th, 1889, with lumbar abscess. Has had pain in the back for two or three years. Last dorsal and first lumbar spines prominent. A fluctuating tumour the size of a cocoanut between the crest of the ilium and the sacral spines.

November 28th. Aspirated, 22 ounces of thin pus removed, half an ounce of iodoform and ether solution injected.

December 6th. Sixteen ounces of pus removed and half an ounce of iodoform and ether solution injected.

January 16th, 1890. Four drachms of pus removed, and two drachms of iodoform and ether solution injected.

February 16th. Made an out-patient, wearing a jacket.

When last seen was quite well, but still wore the jacket.

CASE IX.—F. R., aged 8. Admitted February 18th, 1890, for psoas abscess. One year ago became ill with pain in the back and in the left knee, causing lameness. Present condition: Lordosis and fixing of the hip, no tenderness or pain on pressing the hip or on rotation, but tenderness over lumbar spine without curvature.

February 20th. Aspirated, 12 ounces of pus removed and 3 drachms of iodoform and ether solution injected.

March 6th. Seven ounces of pus removed and iodoform and ether again injected.

March 20th. No sign of return of pus. Extension weight of 12 lbs. put on to straighten the limb.

April 26th. A steel support applied to the spine with a bar extending down the thigh to keep the limb extended.

May 3rd. Made an out-patient, apparently quite well.

September. Attended as an out-patient, expressed himself as quite well; no return of the abscess; still wearing the spinal support.

CASE X.—C. W., aged 36. Admitted July 29th, 1890, for psoas abscess. Has had pain in the lumbar region for three years. A tender spot present at the level of the iliac crest. No prominent spinous processes. Has noticed a swelling in the thigh for the last fortnight. Present condition: Smooth and rounded swelling on the inner side of the femoral vessels.

August 7th. Aspirated, 6 ounces of pus removed, cavity injected with 1 ounce of iodoform solution.

August 21st. Aspirated, 10 ounces of pus removed, again injected with iodoform solution.

September 18th. Aspirated, 5½ ounces of thin watery pus of a light brown colour removed; the pus did not smell of iodoform; cavity again injected.

September 20th. Made an out-patient, wearing a spinal support, there being no further collection of fluid in the abscess cavity.

February, 1891. The patient returned to the infirmary after five months' absence in order to inquire if he was to continue wearing the spinal support. There was no sign of recurrence of the abscess or mark to show where the puncture had been.

REMARKS.—In all cases strict antiseptic precautions are observed as to hands, instruments, and skin over the site of puncture. At first the carbolic spray was used, but of late I have ceased to employ it in any operation. If the pus be thick and incapable of evacuation by the aspirator a good sized trochar is employed. As a rule an anæsthetic is not administered, although when the ether expands some little pain is felt; this, however, rapidly passes away. It will be noted that whilst the emptying of the abscess and the injection of the cavity forms an important part of this method of treatment the disease causing the abscess is not forgotten. The patient is for some weeks kept recumbent, and is afterwards supplied with a correctly-fitting spinal support, which is worn for at least a year or until the spinal disease is well. My reason for bringing these cases forward is that I believe that this simple method of treatment is not generally known, or if known is certainly not usually followed out by the majority of surgeons; and that now from an extended experience I can fully and confidently recommend it.

A CASE OF POISONING BY "FAINTS."

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F. H., male, aged 57, was brought into the Bristol Royal Infirmary dead on June 25th, 1890. At the *post-mortem* examination, fourteen hours after death, rigor mortis was beginning to pass off. The body was well nourished, and there were no signs of injury. Hypostasis was well marked. On opening the body, there was a strong smell resembling nitrite of amyl, but somewhat sweeter, which pervaded all the organs and fluids of the body. The lungs were congested and oedematous, but otherwise healthy. Kidneys rather dark; no diminution in size of cortex, and capsule peeled off easily. The liver was normal and weighed 60 ounces; spleen slightly adherent and rather soft. The mucous membrane of the stomach was soft and thick, and the contents consisted of about 3 ounces of reddish grumous material. The red colour was shown to be due to blood, both by the guaiacum and the microscopic tests. The ventricles of the brain contained about 1½ oz. of clear fluid, having the odour above mentioned. The heart was slightly fatty, the cavities in a state of contraction, and the aortic valves and aorta were somewhat atheromatous. The contents of the stomach, the fluid of the ventricles, a portion of brain matter, and about 3 ounces of urine found in the bladder were saved for examination.

At the inquest on the following day it was elicited that the deceased was a heavy drinker, and his widow stated that he was in the habit of drinking heavily of "faints," which could be obtained in large quantities from a distillery for nothing. Many of the jurymen said that they had frequently heard of "faints" being used externally for rheumatism, but never knew of its internal administration.

I requested the coroner's officer to obtain some "faints"

for me, and I found that it answered to the same tests as the fluids saved for examination. As I am not aware of any record of death occurring from this substance before, and as only slight reference is made to it in the ordinary textbooks of toxicology, I may be permitted to mention some of its properties.

The "faints" is the latter portions of the distillate obtained on rectifying crude spirits of wine from fermented potatoes, etc. It is rich in alcohols which are less volatile than ordinary alcohol and ether, and for practical purposes may be said to consist chiefly of fusel oil (amylic alcohol) mixed with large quantities of the secondary and primary propyl alcohols and the higher homologues of the alcohols and ethers (Rabuteau).

"Faints" has an odour of bad spirits, and owing to the presence of large quantities of amylic alcohol, it yields an odour resembling jargonelle pears, when heated with an acetate and strong sulphuric acid, due to the formation of amyl acetate.

Dr. Fürst, of Berlin, and Dr. W. B. Richardson, by experimenting, the former on rabbits, and the latter on various animals, have shown fusel oil to cause nausea, giddiness, lessened sensibility to pain, and loss of muscular power. They supposed that it acted more powerfully when breathed as a vapour than when taken internally as a liquid. It has at first a powerful intoxicating effect, followed by a period of marked depression. Its superior intoxicating effect is said to be known amongst the consumers of corn brandy in some of the northern countries of Europe, who frequently demand to be served with a "glass of good fusel."

Clinically the above case is of great interest, for in spite of the man's having the habit of taking large quantities of fusel oil (which is considered the most poisonous part of bad spirits) for the greater part of his life, his organs nowhere exhibited any greater degeneration than might be expected in a hard working man of his age, and especially should it be noted that cirrhotic changes in the liver and kidneys were entirely absent.

Finally, I would point out that the habit of drinking "faints," though perhaps not common, is practically without restriction, inasmuch as the substance can be obtained for nothing at various distilleries. This latter fact appears to deserve the attention of the "Select Committee appointed by the Chancellor of the Exchequer to consider the propriety of taking means to prevent the introduction into public use of raw and immature spirits."

THE PATHOLOGY OF GANGLION.

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WHILST there can only be few chances of examining *post-mortem* cases of ganglia, the opportunities which the surgical treatment by excision afford enable a conclusion to be formed of the pathology in the majority of cases, which is certainly more simple than that which has often been given by writers on surgery. I have had a good many patients under my care in whom ganglia have been caused by one of two conditions—first, a sprain or blow causing an immediate effusion of blood into the tendon sheath; the remains of the blood clot are to be found more or less organised as a solid mass within the ganglion; secondly, tenosynovitis, at first acute, later on becoming chronic; the tenosynovitis is generally caused by the overuse of some particular muscle in the work of the patient, especially when the work has only lately been taken up.

Thus, in the case of a boy, his work in the printing office obliged him constantly to twist and adduct his right hand, and to contract the flexor carpi ulnaris muscle. When first seen there was acute tenosynovitis in the tendon sheath of this muscle immediately above the wrist; later on the tenosynovitis became chronic, and a fluid swelling about 1½ inch long formed by distension of the sheath. Melon seed bodies could be felt in it. In a case recently operated upon the patient had been put to work a lift by pulling on a rope so as to use excessively the extensor communis digitorum. Teno-