Thus far the process has been an aseptic one; bacteria have played no part. Why, then, does not the ligature remain buried for ever? The reply is that it would do so were it not for the advent of bacteria, which have a special affinity for damaged tissues, in this case the tissues surrounding the foreign body.

The presence of bacteria from time to time in the blood stream is an admitted factor in the infection of deeply-situated organs, such as bones, when the infection takes place without any breach of surface, as in cases of osteomyelitis. It is from the blood stream that many of these ligatures become infected. In some cases the bacteria are derived from viscera in which they normally live—for instance, from bowel—which may be adjacent or adherent to the ligature. The ligature has not always been infected any more than the bone has been.

The use of unabsorbable ligatures and sutures results from an exaggerated idea of what ligatures are capable of effecting. Ligatures simply hold tissues in apposition temporarily while they are uniting, and unless the tissues grow together not all the silk and metal in the world will produce permanent union, and when this union has taken place the ligature has served its purpose, and the sooner it disappears from the scene the better for all concerned. A ligature which lasts at most a few weeks will do all that is necessary or can be expected.

Catgut, if necessary hardened by chemical reagents, answers this purpose, because after a few weeks it is disintegrated, and as a definite body ceases to exist. Catgut, prepared by either the formalin or xylol process, produces immediate results equal to those of silk, and being absorbed within a few weeks causes none of the annoying sequelae inseparable from the use of unabsorbable material. The unabsorbable ligature must from its nature always be a foreign body, which, as soon as it becomes infected, but not before, will result in suppuration.

The soft tissues of the human body are unsuited to act as a cemetery for pieces of knotted silk and twisted metal, and if surgeons persist in peppering their patients with these foreign bodies, no matter how freely boiled or carbolized, they must expect them to be extruded at varying intervals, just as shot are worked out a person who has been peppered with lead.

THE TREATMENT OF HYDROCELE BY THE METHOD OF SETON.

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At the spring meeting of the Edinburgh, Fife, and Lothian Branches of the British Medical Association I showed five patients in whom cure had taken place by means of the above method. The ages of the patients were 47, 16, 9, 2½, and 1 year. In the case of two of them nine months and seven months had respectively elapsed since treatment; in the others treatment had been more recent. In two of the cases, previous treatment by tapping and by needling the inner wall of the sac had been tried without effect. In four other patients, referred to but not exhibited, cure had occurred in two cases, recurrence in two cases. The former were young children, the latter adults of 69 and 49 years of age respectively, in whom the condition had existed for many years. Both of the latter cases had previously been repeatedly tapped, and one of them, if not both, had been injected with iodine without success. Since the meeting, one further case, an infant, has been treated by the method, and so far no recurrence has taken place.

The treatment of hydrocele by means of a seton, combining as it does two other treatments of hydrocele, namely irritation of the sac and drainage of its contents, has probably suggested itself to others besides the writer as an apparently original method. It is, however, very far from being new, although it has dropped out of modern textbooks. It was, indeed, employed as long ago as the time of the Arabian surgeons. Later, it was revived by Percival Pott, and practised by Sir Astley Cooper and others. It, however, again fell into disuse.

Two reasons probably account for this. In the first place, it is certain that the method cannot be relied on invariably to cure hydroceles in adults, and it is quite useless in old-standing cases of hydrocele with thickened walls. But no more can be claimed for injection, however thoroughly done,

or for any other method short of (a) excision of the parietal layer of the tunica vaginalis, or (b) Winkelmann's more recent inversion operation. Secondly, there is the risk of sepsis. Probably it is this which has been the important factor in causing the method to be abandoned.

That sepsis not infrequently occurred in this region, one can readily imagine, and the older records show that it did. With proper care, however, sepsis nowadays should very rarely take place, and it would therefore seem worth while to give this old method a new trial under happier conditions.

I do not venture to draw any absolute conclusion as yet from so small a number of cases, but the impression I have gathered in comparing these results with those of previous cases treated by injection is distinctly favourable to the seton. Should further experience show this impression to be well founded, the seton may prove of service to those who do not care to undertake either of the two radical operations referred to.*

The actual method adopted by the writer is slightly different from any of those briefly referred to in the older books. A sterilized trocar and cannula of the ordinary pattern, but rather longer than usual, are thrust from behind forwards completely through the affected side of the scrotum. The trocar is withdrawn, and two or three strands of silkworm gut are passed through the cannula and secured. The cannula is next partially withdrawn, and the hydrocele emptied. The cannula is then completely withdrawn, and the two ends of the seton tied together in front of the scrotum. Horsehair or silk can also be employed; if ordinary catgut is used, the knot may soften and come undone. It is important to leave some "slack" to allow for any subsequent swelling of the parts within the loop.

This little operation can easily be carried out in thirty seconds. No local anaesthesia is necessary. If the trocar is sharp, no more, or very little more, pain is felt than in ordinary tapping, and much less than in injection of iodine without cocaine.

After a variable number of hours, swelling of the epididymis, and sometimes of the cord, generally occurs, and is accompanied by some tenderness, which lasts for a few days, or until the removal of the seton. The swelling may be very marked, and may persist for some weeks after the removal of the seton. It is difficult to say when the seton should be taken out. The shortest period during which it was retained in any of the above cases was two days. On the other hand, in one of the chronic cases, in which treatment proved useless, it was kept in for two and a half months! Probably four or five days is sufficient, if a cure is going to occur at all. While the seton remains in, and for a day or two afterwards, a moist antiseptic (boracic) dressing is kept applied. This encourages drainage, is soothing, and protects the parts.

Since the danger of sepsis is the point most to be considered, it is, perhaps, not superfluous to mention how this, in the writer's opinion, may without very much trouble be avoided. The whole neighbourhood is first well washed with soap and water. In adults it is safer to have the pubes shaved as well. In infants a boracic, and in adults a weak carbolic, fomentation is then applied for some hours. Just before passing the seton, the scrotum is washed with spirit. The retention of the dressing can be satisfactorily accomplished if the entire scrotum is enveloped in the dressing, if a small aperture be made for the penis both in the lint and in the gutta serena tissue or jaconette which covers it, and if a suitable bandage be applied. A double spica of the groin, with "variations" across the scrotum, answers well, slits being made for the penis in some of the scrotal turns, and plenty of safety pins used. In infants, a small piece of jaconette is usefully pinned on over all.

Where a hydrocele, either of the scrotum or cord, obviously communicates with the abdominal cavity, neither setons nor injections should, of course be employed. Here excision alone should be performed. In children, however, there is often some doubt as to whether a minute communication exists or not between the two sacs. I do not think this uncertainty should weigh as an argument against the careful use of the seton. Even if sepsis did occur in such a case, the danger of peritonitis must be remote, since the "peritonitis" in the sac of the hydrocele would almost certainly shut off the greater sac from infection?

* Cure can also, of course, be obtained, by the old tedious method of incising the hydrocele and causing it to granulate up from the bottom.