

placed by the flat-bladed instrument when that object has been effected. To use it for reducing large fragments to smaller ones, is to employ an instrument which is not well adapted to that purpose, and one which is at the same time liable to produce an unnecessary amount of irritation.

For the purpose of reducing large fragments to smaller ones, or to débris, the flat-bladed instrument is greatly superior to the preceding. It is a lighter instrument, and occupies less space; it can be opened to the requisite extent without impinging, so much as the fenestrated instrument, upon the walls of the bladder, especially at its neck. Its blades are shorter, it can easily be turned right or left, or rotated completely if need be. The edges of the blades are rounded, since nothing could be gained by making them sharp; they do not even meet each other, an interval always remaining between them when the instrument is tightly closed, so that a tyro need scarcely fear to lay hold of the mucous membrane. Its blades being wide and flat, not hollowed or scoop-like, and without an opening (except a very small one at the angle), the fragments are easily seized, do not readily slip, and when crushed are reduced mainly to powder between two flat opposing surfaces. For the same reason, if the urethra is capacious, the instrument may be withdrawn retaining a good deal of this powder (not sharp fragments) impacted between the blades; while if the urethra is not capacious, it is easy to disengage the greater part of this powder from the blades before withdrawing. As a rule, such an instrument may be used, I venture to say, with advantage, certainly seven times as often as the fenestrated instrument. In the nineteen cases I have reported, with 124 sittings, certainly not less than 100 to 110 were conducted with the flat-bladed lithotrite; indeed, the other was only used for the larger stones. But the flat-bladed instrument may be constructed on a very powerful model. If the male blade is made about half the width of the female blade, and with a very slightly wedge-shaped contour, very slight indeed, as I have suggested and employed, it will readily penetrate any uric-acid stone of an inch or an inch and a quarter in diameter. It should here be said that if the male blade has much of the wedge-shaped form, like a **A**, for example, it not only cuts quickly into the calculus presented to it, but throws off the fragments laterally with extreme force. I tried the experiment some years ago, and was struck with the dangerous facility with which this happened: such fragments were thrown several feet from the instrument when air was the surrounding medium, and very far in water—a totally different result to that from fracture by the ordinary square male blade. The very slight wedge form above described has also the advantage of obviating impaction of the blades with débris, which is more likely to occur with a flat-bladed instrument in proportion as its size is augmented.

Nothing can be more distinct than the characters of the true flat-bladed lithotrite and those of the instrument which has long been termed a "scoop." The latter was introduced into practice long before the flat-bladed lithotrite was made. In the scoop the female blade is much hollowed out, as the name implies, and the edges of both blades fit accurately one to the other: for this reason there are strong objections to the instrument; and, further, because its hollowed blade is necessarily easily impacted by débris; because a small quantity of débris largely augments the calibre of the blades; and, lastly, because this débris cannot be dislodged after impaction has taken place.

Next, in order to reduce mechanical contact with the bladder to its minimum, it is essential to employ a lithotrite of which the two motions, those of the screw and the sliding movement of the male blade, are easily exchanged the one for the other. The lithotrite which has long been used in this country—always by Sir B. Brodie—is one in which the blades cannot be reopened after having been screwed home, except by the tedious act of unscrewing. Professor Fergusson overcame this great defect by substituting the rack and pinion for the screw as the mechanical power. Speaking generally, however, the screw is still much preferred to the rack and pinion, now that its action can be instantly detached, and its blades opened and closed by a sliding action convertible into screw action by a simple movement of the thumb. Regarding carefully all the points of importance, I do not know any instrument, British or foreign, which at this moment so completely supplies all the desiderata as a form of lithotrite which has been recently made by Messrs. Weiss: that is, one which does its work with so small an amount of concussion in the bladder. It can be turned smoothly round with the greatest facility, merely by the finger and thumb of the left hand, in prosecuting the most delicate search; it can be held immovable with the firmest

grasp by its cylindrical handle when dealing with a large stone. I have long felt the want of such a handle in the French lithotrite, which up to three years ago appeared to many to be the most commodious instrument, and in consequence suggested the long cylindrical one; and it has answered beyond expectation. The mode in which the sliding action is converted into screw action, and *vice versa*, which Messrs. Weiss have designed and applied, is much simpler, easier to accomplish, and less liable to cause lateral movement of any portion of the instrument within the bladder, than is the French instrument.

So much for lithotrites. With regard to washing out the bladder for the removal of débris, I am sure all who have much employed it must confess how little productive is the process. When much débris is within the bladder, no doubt it is easy enough to remove some of it thus; but then no difficulty exists respecting this débris. It will pass off by itself readily enough. It is the obstinate fragment at last, or the two or three fragments, that do not come away, but remain in spite of repeated washings, which sometimes demand interference for their removal, and may occasion a little trouble. Some accidental shape perhaps causes this: the fragment may be a flat scale perhaps, which adheres to the bladder, and is not easily transmitted by the natural current, or washed through the eye of a catheter. Whatever the cause, however, so it sometimes happens. For myself, I have preferred in such a case to detect its exact situation in the bladder by means of a small sound delicately used, and, having done so, the patient not moving, then to pass a small, flat-bladed lithotrite straight to the spot, when three times out of four it may be picked up at once, usually with the blades pointing downwards, and found often immediately behind the neck of the bladder.

I have recently seen, and two or three times used by way of experiment, an instrument for removing débris from the bladder, designed by Mr. Clover, which promises to be useful. He has contrived a very ingenious method of making a current of not more than one or two ounces of water pass to and fro from the bladder into a glass receiver, into which the débris is deposited. Mr. Clover will, no doubt, describe its action before long. It seems to me much more efficient than the recent application of the ancient method of irrigation by means of the screw, which has been employed by M. Maisonneuve, and one of which instruments I have.

One word of remark on Mr. Holmes Coote's letter in THE LANCET of last week. There appears to be still the main and the very important point on which we differ—viz., the applicability of lithotrity to stones which are *hard* and *not small*. This difference must not be diminished by any misapprehension as to the nature of the cases adduced by me. I deny altogether that my cases were examples of those "in which a uric-acid calculus drops from time to time from the kidney into the bladder," if by that is intended cases in which this had recently happened, and in which therefore the stone was small. Nevertheless, Mr. Coote says—"Of such general characters are sixteen out of the nineteen cases.....The seventeenth was a child.....The remaining two oxalate of lime." But I am compelled to say that, on the contrary, at least one-half were hard stones of an inch and upwards in diameter, which had existed from one to five or seven years at least. I distinctly defined the terms I used in relation to size, in order to mark that fact. Furthermore, of many of these stones I possess much of the débris, separated and carefully preserved for examination, and these may be seen in proof of my assertion. As to the two oxalate-of-lime stones, one was quite small; but the other one was little less than an inch in diameter, and as hard as possible, and the patient's symptoms had existed four years: no case could have done better.

Wimpole-street, March, 1865.

## ON A CASE

OF

## TYPHOID FEVER, WITH PERFORATION OF THE BOWEL ON THE ELEVENTH DAY.

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THE Medical Officer of the Privy Council and his coadjutors having made reference to an hospital case of mine for a purpose already considered,\* I am reminded of an unfulfilled intention

\* Vide THE LANCET for Oct. 22nd, 1864, p. 475.

to place the same on record. As a contribution to the clinical history of typhoid fever the case seems to possess some interest. I shall transcribe it, with some little condensation, from the notes taken at the time, and offer a remark or two in the sequel.

S. F—, aged seventeen, a sempstress, was admitted into the Bath United Hospital on the 17th of December, 1861, on account of epileptiform attacks of recent origin, associated with, if not dependent upon, excessive menstruation. She was treated with chalybeates and a supporting diet, and when the flux, which recurred at intervals of from six to thirteen days, was very profuse, more powerful styptics were employed. No fits occurred until nearly a fortnight after her admission, from which time to the 26th of January she had seven or eight, the severest lasting about an hour. She took, in addition, bromide of potassium during this period. On Feb. 3rd, the menstrual disorders having considerably improved, and there having been no recurrence of fits since the date above mentioned, a slight attack of pneumonia supervened. This yielded readily to ordinary treatment. She was convalescent therefrom on the 7th, and under the use of quinine and full diet continued uninterruptedly to improve until the 18th, so that she was now about being discharged. On the same day she was seized with sickness, headache, and feverishness, that obliged her to go to bed. Ordered mercury pill, four grains, and a seidlitz powder four hours afterwards.

Feb. 20th.—Sickness less, but otherwise unrelieved; temperature in axilla, 103°. Ordered mercury with chalk, five grains; compound ipecacuanha powder, ten grains: make into a powder, to be taken at bedtime. A simple saline mixture, one ounce, three times a day.

21st.—Temperature 104°; pulse 120; respiration 28. Two pints of beef-tea were ordered daily.

22nd.—Several rose-coloured spots over the abdomen; temperature 103°; pulse 116; respiration 36. To take mercury with chalk, two grains; compound ipecacuanha powder, five grains: make into a powder, to be taken every night. Omit the draught. Three ounces of wine daily.

23rd.—Has vomited; pulse 120; tenderness in right iliac fossa, but bowels not relaxed.

24th.—A restless night, with delirium; dryish tongue; diarrhoea; temperature 102°; pulse 120; respiration 28. To have arrowroot.

25th.—Delirium last night, but had two hours' sleep; has vomited; diarrhoea less; tongue not so dry; temperature 103°; pulse 120; respiration 40. The spots were more numerous; iliac tenderness less. Omit the powder, and substitute acetate of morphia solution, four minims, with potassio-tartrate of antimony, quarter of a grain, in liquor of acetate of ammonia: to be taken every second hour at night until sleep supervene. Water acidulated with dilute hydrochloric acid for a drink.

26th.—Slept well; no delirium; temperature 101°; pulse 112; respiration 44; tongue red and raw-looking, but moist; slight tympanitis; moderate diarrhoea.

27th.—Restless and delirious until two A.M., when she took the morphia and antimony draught, and afterwards slept well; temperature 100°; pulse 128; respiration 28; tongue dryish; eruption disposed to fade; more iliac tenderness.

28th.—Sleepless night, with constant muttering delirium; constant diarrhoea; temperature 100°; pulse 120; respiration 32; spots fading, and no fresh ones appearing; great tenderness in iliac fossa. Omit the night draught. To take acetate of lead, two grains; acetate of morphia solution, ten minims; dilute acetic acid, four minims; water, one ounce: make into a draught, to be taken every four hours. To have six ounces of brandy.

March 1st.—Slept well all night, but there is a return of muttering delirium this morning. Nine A.M.: Pulse 152, small; respiration 44; bowels not opened since yesterday; eruption disappearing; tenderness of iliac region increased. Turpentine stupes to the abdomen. Brandy, twelve ounces. Two P.M.: Pulse hardly perceptible; breathing hurried; expression anxious; great increase of tenderness on pressure in lower half of abdomen. She does not complain of pain, but evidently suffers some; occasional sickness; no increased tympanitic resonance of abdomen, and respiration, though chiefly thoracic, not entirely so. (Perforation was at once diagnosed.) In spite of all treatment she died at six P.M.

*Inspection, forty-four hours after death.*—On opening the abdomen, there were no signs of general peritonitis, nor was there an unusual escape of fetid gas. On removing the omentum and superjacent intestine, however, slight extravasation of the contents of the bowel became evident at the lower part of the ileum. A pint or so of dirty yellowish fluid, increased vascularity of the peritoneal surface of the intestine, and effu-

sion thereon of recent lymph, slightly gluing together adjacent coils, were the appearances presented at this part. At about six inches above the ileo-cæcal valve was discovered a roundish opening that would admit a small goose-quill, and encircling this for some little distance was a zone of deep redness. Examined from within, the opening was found to be situated in one of Peyer's patches, but it seemed partially plugged by a portion of the yellow slough which adhered loosely to its ulcerated surface. The ulceration of the patches had not proceeded upwards to any great extent, but such as were ulcerated had for the most part the same yellow slough adherent to them.\* The kidneys were somewhat congested, but, generally speaking, nothing important was detected elsewhere.

*Remarks.*—The occasional occurrence in the course of typhoid fever of perforation of the bowel is a well-known fact. Those who have not witnessed it themselves, have no difficulty in finding reports of cases or preparations in museums demonstrative thereof. The liability is most important to bear in mind in prognosis, and particularly as the process concerned is a latent and insidious one, the event itself sudden and overpowering, and the consequences, with rarely an exception, rapidly fatal. But this liability, as might be expected, is not the same at all stages of the disease; rather it may be said, the frequency of perforation varies greatly at different periods. In the elaborate, if not exhaustive, "Treatise on the Continued Fevers of Great Britain," by Dr. Murchison, (p. 508,) we have statistical information on this point. "In one case at the Fever Hospital," we read, "the perforation took place as early as the ninth day of the fever. Peacock mentions a case where it occurred on the eighth day; and in one of Louis's cases it happened on the twelfth day. In most cases, however, perforation does not occur until the third or fourth week, and in many it is delayed until after the cessation of the primary fever. .... Of 32 cases observed by Louis (8) and Bristowe (9) and at the London Fever Hospital (15), the perforation occurred during the second week in 8 cases (in all the 8, except one, it occurred on the twelfth, thirteenth, or fourteenth day); during the third week in 6; during the fourth week in 9; and after the fourth week in 9." Now in the case under consideration there is good reason for referring the event to the eleventh day. The patient was seized on the 18th of February, in the daytime, with sickness, headache, &c.—the symptoms of invasion; and at nine A.M. of the 1st of March the great rise in the pulse and return of muttering delirium sufficiently betokened that the lesion had now taken place, though probably only just before, as she had passed an unusually good night. And the evidence here, it may be observed, is not of the doubtful kind too frequent in such cases. How often does it happen, especially in hospital practice, that in dealing with acute febrile diseases having a determinate duration, in which it is important to ascertain with precision the date of attack, we are thrown upon testimony of the most vague and unsatisfactory character; and particularly so with typhoid fever, as its invasion is oftentimes not so distinctly marked with rigors, &c., as is that of others of the class. The earliest instance of perforation given in the above-quoted passage seems for this reason not an unexceptionable one. On referring to the original, Dr. Peacock, I find, says: "I have seen it [intestinal perforation] in a man who had been ailing for some time, but seriously ill only eight days." Unless ascertained by medical observation (and this is not stated), the *point de départ* of the specific disease here seems open to question. But in the present instance, by a rare opportunity, we were enabled to trace the course of the fever, and calculate its duration almost to the hour.

Respecting the diagnostic features of the case there is nothing so remarkable. The peritonitis was strictly local and circumscribed; hence the exquisite tenderness on pressure and great tympanitic distension of the abdomen generally, which frequently attend the hyperacute form of this inflammation set up by perforation of the hollow viscera, were not present. The extravasation seemed to have been limited by a partial occlusion of the opening. What relation, if any, existed between the disappearance of the typhoid eruption for a day or two previously and the event itself, seems doubtful; no similar observation occurring in the recorded cases that I have seen. Death took place at the usual interval of a few hours, on the twelfth day of the fever (not on the eleventh, as in the Official Report).

Bath, 1865.

\* A preparation was made of the perforated portion of bowel, and placed in the pathological museum of the hospital. The case also, along with one or two others of typhoid fever, formed the basis of a lecture to the clinical class during the winter session 1861-62.