was affected, as well as the peripheral nerves. He further notes that his vessel was a mackerel fisherman, while those off the Grand Banks were cod fishermen.

The possibility of infection from the fish should be considered, and the letter from Dr. Davis is interesting in this connection.

This patient also says that the vessel on which he and his crew were employed had not at any time been engaged in the Southern trade, so that this possible cause of infection, which was present for Dr. Shattuck's cases, may be set aside, so far as this group is concerned.

A SUCCESSFUL CASE OF URETERO-LITHOTOMY FOR AN IMPACTED CALCULUS.¹

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THE following case is interesting, first from the fact, that so small a calculus should lodge for so long a time in the ureter without progressing toward the bladder; secondly, on account of the serious constitutional disturbance that it caused; and lastly, from the success that attended its removal.

The patient, rather a slight man of forty, was under the care of Dr. S. W. Driver, of Cambridge, and was seen on the 22d of April, 1890, in consultation with him, and with Dr. J. T. G. Nichols and Dr. Walter Ela.

Six years before, he had been under the care of Dr. Driver for an inflammation of the bowels, which was mainly located in the right side, and was probably connected with the appendix. Since that time he had enjoyed good health with the exception of occasional attacks of colic, for which he sometimes consulted the doctor, and which seemed to be due to disturbances of digestion.

For the past three months his bowels had been somewhat loose, and during this time he had had seven or eight sharp attacks of pain which came suddenly and passed away suddenly, and were all referred to the left side, in the front of the abdomen, at a point just above the middle of Poupart's ligament. This pain did not run down the thigh nor into the scrotum, although retraction of the testicle was noticed in some of the paroxysms.

None of these attacks were severe enough to demand medical aid until April 16th. On that day he was seized with a sharp, sudden pain, like that in the previous attacks, but much more severe, and enduring persistently, not passing off as the others had done. He was then seen by Dr. Driver, who found him suffering from very severe paroxysmal pain. The abdomen was soft and flaccid, not tender, except slightly in the left hypogastrium, at the point where the pain was especially felt. Subsequently, a very sensitive spot was found in the back, midway between the crest of the ilium and the lower rib. This last spot of tenderness was constant, not disappearing during the intermissions, and the pain on pressure was very acute.

He was treated with full doses of opium, together with the frequent administration of ether when the paroxysms were especially severe. In this way he

passed five days, suffering pain most of the time, though with occasional intermissions of considerable length.

Examination of his urine showed it to contain a few hyaline and granular casts, and on April 20th considerable pus was found in it.

On April 21st, he had for the first time, some fever, the temperature going to about 101° F., and the pulse being above 100. Except for this he had a good day, with but little pain.

Early in the morning of April 22d an unusually sharp attack of pain began, and this lasted until we saw him, at one o'clock; the only relief obtainable being by the persistent inhalation of ether. The moment that he began to be conscious, the crying out from the pain was constant.

On this day he began to vomit, and his pulse was weak and frequent.

At the time of consultation the urine was perfectly clear. He was partially under the influence of ether when examined, so that his sensations could not be accurately determined, but it was quite evident that the point of extremest tenderness was in the lumbar region, midway between the ribs and pelvis. There was also a slightly increased sense of resistance felt over the renal region, but it was thought that this was very probably due to muscular rigidity.

Although there had been no movement of the bowels since the beginning of the attack, the absence of sensitiveness or distention in the abdomen made it pretty clear that the intestines were not responsible for the present illness. On the other hand, the character and location of the pain, with the tenderness in the lumbar region, pointed to the kidney as the probable source of trouble; and even in the absence of disturbances of micturition, and of the characteristic pain shooting into the testicle, it was thought that a calculus in the ureter was probably the correct explanation of the symptoms. The varying condition of the urine, now containing pus and again clear, made it seem that a certain amount of urine leaked around the calculus, and the presence of casts in the urine showed that the kidney was already suffering from the obstruction.

In view of the rise of pulse and temperature, and the distinct and rapid loss of strength under the severe pain and the appearance of vomiting, it seemed wise to attempt to remedy the condition by an operation. The possibility that there might already be an inflammation, with pus forming around the site of the calculus, made the operation seem the more desirable.

The patient was accordingly etherized, and an incision was made along the outer edge of the quadratus lumborum muscle, from the lower edge of the twelfth rib to the crest of the ilium. The space between the rib and the pelvis was very narrow, even after the trunk was bent strongly over pillows.

The kidney was found to lie very high under the ribs so that only its extreme lower end could be brought into view. A needle carried through the kidney, in the direction of the pelvis, met with no resistance and encountered no calcareous matter. An exploration was then made along the course of the ureter, as nearly as that could be determined, and in the deep part of the wound about two inches below the kidney, a small hard mass was felt, and on examination it was found to be lying in the ureter. With a blunt hook the ureter was drawn forward into view,

¹ Read before the Boston Society for Medical Improvement, May 12, 1890.

and exploration with a fine needle showed this mass to be a little calculus. It was readily removed through a little longitudinal cut in the line of the ureter.

A probe was then passed through this opening, up into the pelvis of the kidney, and downwards about five or six inches towards the bladder, without encountering any other calculi. A drainage-tube was laid in close contact with the opening in the ureter, and another was carried up behind the loose tissues around the kidney. The angles of the wound were brought together with sutures, but it was left largely open. The patient bore the operation well.

After recovering from the ether, the sharp paroxysmal pain had wholly disappeared, although there was still considerable dull pain in the same region as before.

The first urine after the operation was examined with the following result: Color, high; specific gravity, 1.019; sediment considerable, containing many large and small, hyaline and granular casts, a few pus cells, and occasional red blood cells. This specimen contained no albumen.

Two days later, on April 24th, the specific gravity was 1.023, and there was a large trace of albumen. The sediment still contained hyaline and granular casts, but far less abundantly. There were also still a few old blood cells, and very few pus cells.

On April 25th, the patient had a sharp attack of pain in the morning, which he located in the old place. This was relieved by the subcutaneous injection of morphine, and at the dressing, the tube which reached down to the ureter was shortened, with the idea that it might possibly be obstructing the flow of urine. The next day, the dressing, which had been dry since the day after the operation, was soaked with urine, and there had been no recurrence of pain. The patient was beginning to take food well, and was looking much better.

On May 2d there was another slight attack of pain, and this too was accompanied by the escape of urine through the wound. From this time the wound steadily closed, there was no more leakage of urine nor pain in the course of the ureter. The patient steadily gained in flesh and strength. Finally, on May 12th, (three weeks from the time of operation), the last tube was removed, and the patient was up and out of bed.

The calculus removed in this case was a little rough phosphatic and carbonate stone weighing two grains.

A stone impacted in the ureter is a condition by no means devoid of danger. Cases are reported, in which, even although the other kidney was apparently healthy, a fatal suppression of urine has followed the stoppage of one ureter in this manner. Israel, who has reported such a case, regards the suppression as due to a reflex inhibitory action, the starting point of which, is the irritation of the ureter by the calculus; and he cites cases to show how much the secretory function of the kidneys is under the control of the nervous system. Urethral surgery furnishes further illustrations of this sort of inhibitory action due to distant irritation, in the cases of interference with the function of the kidneys after operations, often of but little severity, on the urethra.

Besides this general danger of interference with the secretion of urine, the kidney on the affected side

often becomes seriously diseased through changes directly due to the obstruction to the escape of urine. These changes may take the form of a hydronephrosis, or of an interstitial nephritis. The formation of a pyonephrosis under these circumstances too, is by no means uncommon.

That the kidney in the case reported had already begun to suffer, was shown by the presence of casts and pus in the urine. Unfortunately, no exact measure of the daily quantity of urine had been made, but it had been noticed to be diminished in amount, and this diminution was due, no doubt in part, to the obstruction of the calculus, and partly to the reflex irritation, and to the congestion of the kidney.

It would seem wise to operate for the removal of an impacted calculus as soon as any constitutional symptoms show themselves, or when there is evidence that the kidney on the affected side is beginning to suffer degenerative changes. An operation for the removal of a calculus, if done early, is much better borne than when done upon an exhausted patient, late in the progress of the disease. It may too save a useful kidney which would be lost by delay.

It is often difficult or impossible to determine beforehand the position of a calculus in the ureter. The point of greatest tenderness should be sought for with a good deal of care. In the case just reported, the stone was found directly under the point of constant tenderness in the loin. When the stone is lower down in the ureter, it is sometimes possible, particularly on a thin patient, to find a constant tender point where the calculus rests by deep pressure over the line of the ureter through the anterior abdominal wall. In a woman, the calculus may be felt through the vagina, if it has lodged in the lower part of the canal. Such a case has recently been seen by the writer, where the calculus could be distinctly felt lying close to the left side of the cervix uteri, and a little behind it.

Israel proposes the following incision for exposing the ureter extra-peritoneally: Commencing at the anterior edge of the sacro-lumbar mass of muscles, a finger's breadth below the twelfth rib, the cut is to be carried parallel to the rib as far as its tip; then turning down towards the middle of Poupart's ligament till the line of usual incision for tying the iliac artery is reached, then turning towards the middle line, and ending on the external border of the rectus muscle. According to the seat of the calculus, the incision will be made on the posterior, middle or anterior third of this line.

When, as is sometimes the case, the calculus is actually lodged in the vesical opening of the ureter, it may be reached by a supra-pubic incision in the case of a man, or by a dilatation of the urethra in the case of a woman. This lowest portion of the ureter is also quite accessible in woman through the vagina, and in the case above alluded to, in which the calculus could be felt alongside of the cervix uteri, it was removed by incision in the vault of the vagina, and was found to weigh 190 grains in the wet state just after its removal.

This case, which is not yet completed, will be reported more fully at some subsequent time.

The favorable course of the case which gave the title to this paper, shows that a longitudinal cut in the ureter will quickly close, just as similar incisions do in the urethra. No attempt to apply sutures to

the wound in the ureter were made. The wall was so thin that a suture would necessarily have entered the canal where it would be likely to have given rise to the deposit of urinary salts, the calibre would have been narrowed by any gathering together of its walls, and the ureter lay so loosely in the tissues about that, unlike the urethra, it could not be drawn together by stitching the tissues down close to it, and lastly, it lay so deep that it would have been almost impossible to apply sutures without a much more extensive separation of the tissues about it.

A PLEA FOR PHYSICAL DIAGNOSIS.

BY J. HILGARD TYNDALE, M.D., NEW YORK.

BROADLY speaking, we recognize in diseases of the lungs two main pathological divisions. *Rapidly developing* processes, of which croupous and catarrhal pneumonia and all forms of pleurisy are examples; and *slowly progressive* processes — represented by shrinkage of connective tissue (fibrous phthisis), caseous infiltration, and the formation of cavities. Tuberculosis — the presence and rapid proliferation of the bacillus tuberculosis — is to be classed either as an acute invasion or as a final climax to chronic conditions.

To determine the existence of any of the above conditions we resort to auscultation and percussion as a means of diagnosis. In speaking of the methods by which the average physician arrives at a conclusion by means of auscultation and percussion, I will confine my remarks to diseases of the lungs to illustrate the pathological condition — leaving out the heart and abdominal cavity, pass by palpation and inspection as aids to diagnosis, and confine myself to auscultation and percussion alone.

Given, a patient whose subjective symptoms point to acute or chronic disease of the lung. Given, also the general practitioner, who is about to examine him. I refrain from calling attention to the average *method* of examination; auscultating and percussing over clothing — a most reprehensible proceeding — or how ear and fingers are used to determine sound, or whether or not it is always best to use hammer and stethoscope. What will the attending physician look for?

Chiefly, and often only, for *moist or dry râles* — the so-called adventitious sounds. If they are present, the diagnosis is largely, if not entirely, based upon that finding. Or going a step farther, he will determine the *presence or absence* of the two normal respiratory sounds — the vesicular and tubular (bronchial). Thus far auscultation. As to percussion, he will determine whether the percussion note approaches the norm or, if not, whether there is *distinct* dullness or an equally readily recognizable tympanitic sound.

In active processes in the lung, a correct diagnosis can be, and often is, thus arrived at, more especially when the disease is accompanied by more or less fever. So far, so good, for the patient as well as for his medical attendant.

Again, it must be borne in mind that a practitioner with an extensive practice cannot be expected to devote a very great portion of his time to one patient. And to make a correct physical diagnosis in disease of the respiratory organs, and to note its progress from day to day, requires time.

The great bulk of cases in which the subjective symptoms of a patient point to lung trouble, however, are not of an acute nor of a very pronounced character. I venture to assert that seventy per cent. of all chronic lung troubles present no such readily recognizable physical signs as those mentioned above.

All progressive pathological conditions of the lung, which we sum up under the comprehensive heading of pulmonary consumption, finally cause death by an invasion of acute tuberculosis, by purulent infection, or by heart-failure, or several of these elements combined. Years often elapse before this finale is reached. During all this time the slowly destructive process goes on, even though the general nutrition may be in great measure, unimpaired.

We are all familiar with the forms in which these processes present themselves. They are, broadly speaking, as follows:

(1) *Shrinkage*. — The result of connective tissue processes around the bronchi and in the pleura. The latter is by far the most frequent starting point of all phthisical conditions.

(2) *Filling up* of the bronchioli, and consequent obliteration of vesicular structure by inspissated mucus and pus, and by epithelium — so-called cheesy infiltration.

(3) *Excavation*. — The formation of one or more large cavities, or a great number of small ones.

Neither of these three conditions is in itself a deadly agency, but they are the potent factors which slowly drift the patient toward death by one feature common to all: The gradual but certain *diminution of the respiratory surface*, necessary for the oxygenation of blood, and the existence of the patient. In other words, they steadily encroach upon the territory requisite for respiration. This is one of the most potent truths in pathology, and should ever be borne in mind.

Now whenever shrinkage, infiltration or excavation are present to such an extent as to seriously impair the requisite respiratory surface, then the physical signs mentioned above become readily recognizable — namely: moist or dry râles; or distinct absence of vesicular murmur, and tubular respiration where the vesicular should be heard. Also dullness or exaggerated resonance on percussion. These are the signs to which I have drawn attention as being easily recognized even by an unskilled observer.

And now I come to my actual plea for physical diagnosis. I reiterate that the great majority of phthisical patients present no such tangible evidence of their lung condition as mentioned above — never in the incipient stages, and hardly ever before weeks and months have elapsed.

This plea is not intended as a handbook of physical diagnosis. Hence the necessity of confining myself to broad facts. The physical signs of all forms of pulmonary phthisis are caused by one of two main pathological elements.

(1) *Changes of structure in the pulmonary and bronchial tissues themselves* — whether by connective tissue shrinkage, cheesy infiltration, or the invasion of tubercular bacilli, or an intermingling of several.

(2) *Adhesions of the pleura*, which act as a mechanical hindrance to respiration, by binding down the lung.¹

¹ The credit of bringing forward, and upholding this most important factor in lung troubles, is almost entirely due to Prof. James K. Leaning, of this city.