

The insurance companies often try to get the hospital to give opinions and act as experts, but we have consistently refused. Cases that cannot be settled are at times sent to the hospital by the Board for an impartial opinion. These cases are seen by the heads of the various departments and a written report made. A fee of \$5.00 is charged. I have seen several cases in this way, and with few exceptions they have been malingerers. Dr. Cotton says that malingering is not common, and is seen only in old people and foreigners, as young men are glad to get back to their work and make more money.

## PAIN IN THE RIGHT LOWER QUADRANT.\*

BY WILLIAM WARREN TOWNSEND, M.D.,  
RUTLAND, VT.

ALL general and abdominal surgeons appreciate thoroughly the significance of pain in the right lower quadrant of the abdomen, and this is likewise true especially of those of us who devote special attention to surgery of the genito-urinary tract. It is not uncommon, after we have operated on patients for the relief of painful conditions in this location and have made possible to them the resumption of normal activity, to note a recurrence of the former pain, oftentimes in increased severity. It is this class of cases that we wish to mention briefly, in the hope of eliciting a discussion which will call to light enough data to uphold our contention that this subject is a most important one.

Pain in the region under discussion should be considered from a two-fold viewpoint. Much of what belongs under abdominal pain proceeds from the superficial, or protective structures which are common to the entire abdomen, and include the skin, cellular tissues, muscles and parietal peritoneum. Painful conditions like erysipelas, phlegmon, neuralgias, painful neoplasms, etc.; may occur, at least in theory, in any region of the abdomen and are none of them peculiar to the right lower quadrant. The same is true of subjective or hysterical pains. Before proceeding to the practical part of our paper we may quote a little from Behan's work on pain. Hyperesthesia and hyperalgesia are of little value in localizing the source of pain. Spontaneous pain must be carefully distinguished from pressure pain, which is practically synonymous with tenderness. Pressure may cause or aggravate tenderness. The pressure excited may be superficial, ordinary or deep. While spontaneous and pressure pain tend to coincide, numerous departures are known, as in gall-stone disease in which, while tenderness is felt directly in the gall-bladder, spontaneous pain is felt at the angle of the scapula. Pressure pain is usually associated with rigidity of the subjacent muscles.

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Spontaneous pain may be subjective or objective. The former is generally termed psychogenic, which term includes hysterical neurasthenic, habit and occupation pains. Objective pain may be due to organic or functional causes. The former class is represented chiefly by inflammatory pain and various complicated conditions in which pain is felt at localities remote from the lesion, as a result of the complexity of nerve distribution and anastomosis. Pain in an affected structure may be associated with pain in a remote locality. Pain in hip joint disease is referred to the knee. After amputation stump-pain may be felt in an imaginary leg. When one kidney is diseased pain may be felt in its fellow. Concrete facts like the preceding have long been known, but when Behan and other authorities on pain attempt to form elaborate classifications which include referred, reflex, transferred, projected and other pains, the artificial character is readily apparent and much confusion arises. A given pain might belong equally to several varieties. We are little better off in this respect on them when the term "sympathetic pain" accounted for all secondary pains. Deep-seated pains in the right lower quadrant are due to a local, demonstrable pathology. A patient referred to us for recurring attacks of pain in the right lower quadrant had had an appendectomy several years previously and was afterwards operated upon for extensive adhesions in the right abdomen. This case fits well into the group described by Cumston as the intestinal group, he differentiating it from the pelvic group, which includes lesions of the tubes, ovaries and ureters. Ureter catheterization showed the patient to have a right ureter, through which it was impossible to pass any sized ureteral catheter or bougie. At operation many adhesions were found which, undoubtedly, pulled on the ureter to such an extent as to cause the kink that produced the obstruction. This case illustrates the type with a demonstrable pathology in the right lower quadrant, producing symptoms of ureter or kidney disease; and while such cases are common, I believe from our limited experience, that patients with symptoms of a surgical lesion in the right lower quadrant, in which the lesion is found in the kidney or ureter, are more common than is appreciated. One has but to study the work of Head on the subject of referred pain to be impressed with the possibility of pain in the right lower quadrant due to lesion in the kidney or ureter. We all recall Kelly's statement, that 60% of all patients who complain of right-sided pain have kidney disease, the pain coming from the capsule and subcapsular tissue. According to Head, the affected nerves come from the last three dorsal and first lumbar segments of the cord.

The most conspicuous pathological conditions of the kidney which cause pain in the right lower quadrant are the infections, and pain in

this region due to a calculous kidney we know of in but one case; in this one there was a possibility of a ureteral stone. However, the latter was never demonstrated by x-ray or cystoscopy, as the patient would not consent to these procedures.

*Movable kidney* in our experience produces pain in the right lower quadrant in a percentage of cases. In two cases recalled the pain was not of the referred type, but due directly to a sensitive kidney found in the locality mentioned. In acute congestive conditions of the kidney, it is possible to obtain a referred pain. In medical nephritis Behan presents cuts of tender zones. New growths of the kidney—the hyper-nephromata—may cause pain in the right lower quadrant.

Maylard, in referring to the reno-renal reflex, cites a case of left kidney disease with pain in the right lower quadrant.

Pathological conditions of the upper ureter, as a calculus lodged at the uretero-pelvic junction, will cause a referred pain in the right lower quadrant. Such a case was seen by us through the courtesy of the surgeon who had operated upon the patient for appendicitis. The appendix at operation was of the anemic type and really not diseased. The pain, complained of by the patient, recurred as soon as he was up and about again, and x-ray and ureter catheterization revealed a calculus at the point of first constriction in the ureter; we removed it and the patient was relieved of his pain. A urinary examination made of this patient's urine at the time of first operation revealed blood and a few leucocytes. As blood is found in the urine in so many appendix cases, it rather impairs the value of this aid to differential diagnosis. Pain elicited by deep pressure at the point of intersection of a horizontal line drawn from the iliac spine and one drawn perpendicularly at the pubic spine of either side, will give us approximately the point at which the ureter crosses the pelvic brim, the second point of physiological narrowing of the ureter, and a common point of arrest in the passage of renal calculus. Calculi impacted at the third point of physiological narrowing of the ureter generally produce pain low down in the right lower quadrant and groin, which radiates to the inner side of the thigh. Right-sided ureteritis may produce pain in the right lower quadrant, and it is generally provoked by deep pressure at the point where the ureter crosses the brim of the pelvis, as described above.

We cannot dismiss the subject of right-sided abdominal pain due to ureter and kidney disease, without emphasizing the importance of always being on guard for the possibility of renal tuberculosis. This has been most forcibly impressed upon us recently when we removed a large tuberculous pyo-nephrotic kidney from a patient, who had had her appendix and right

ovary removed for colicky pain in the right lower quadrant.

Bladder disease does not cause pain in the right lower quadrant, except as it may extend into the right side from the suprapubic region. We have seen several cases of diverticula, which extended into the right side, and deep pressure on the tumor would cause pain. In two cases of congenital hernia with symptoms of irritable and frequent urination, there was marked pain in the right lower quadrant. At operation for hernia, the bladder was found to be adherent to the hernial sac.

In the female, urethral disease is felt in the area of the twelfth dorsal nerve, which corresponds more or less with the right lower quadrant.

In cases of disease of the urethra in the male, we do not recall any which caused pain in the right lower quadrant; nevertheless, disease of the posterior urethra, prostate, vesicles, and the structures in the prostatic urethra are so closely associated with the urethra that it is difficult to differentiate. Fuller first called our attention to vesicle colic, and we are certain that a right-sided diseased vesicle has oftentimes been mistaken for appendicitis. Young, Geraghty and Stevens, in their article on prostatitis in the 1906 Transaction of Johns Hopkins Hospital Association chart, referred pain in the right lower quadrant as being due to prostatic disease; however, most all cases of chronic prostatitis are associated with vesiculitis.

*In Conclusion.* It would seem that a careful interrogation of any subjective or objective symptom, pointing to disease of the genito-urinary tract, and a painstaking examination of the urine, not of one specimen, but of several, may suggest disease and a further study of these organs before operating for obscure pain in the right lower quadrant.

#### DISCUSSION.

DR. F. H. GERRISH, Portland, Me.: Not only does pain in the appendix region sometimes depend upon acute trouble at a considerable distance, but a bad appendix may occasion great disturbance in another organ, without displaying any symptoms directly. A case illustrating this occurs to me: A young woman had a constant irritation of the bladder. Finding no calculus or other obvious cause, I etherized her, dilated the urethra, and explored every part of the bladder; but nothing was discovered to account for her suffering. A while afterward she had a frank appendicitis, and I operated, removing an appendix that had evidently been the seat of a low-grade inflammation for a long time. After recovering from the anesthesia, she was able to retain her urine normally. The irritation of the bladder was a reflex from the chronic appendicitis.

DR. GARRY DE N. HOUGH: I would like to add—acute inflammation of a Meckel's diverticulum.

DR. ARTHUR T. JONES: There is another condition which I wish to mention; it is that of enlarged mesenteric glands, which are found rather frequently. Many of the glands are calcareous and are often tuberculous in origin. These cases are usually operated upon with the diagnosis of appendicitis. Often we find sufficient inflammatory condition to account for the enlarged glands. The ileum may be bound down into the pelvis, producing acute symptoms. One feature that is important in cases of tuberculous mesenteric glands is the low leucocyte count. With pain in the right lower quadrant, where you expect to find the appendix diseased, but in which you find it not sufficiently inflamed to account for the symptoms, investigate the mesentery for tuberculous glands and follow the ileum along for several inches, and you will often find the cause of symptoms.

DR. JOHN H. CUNNINGHAM, JR.: Dr. Townsend has called our attention to the more common condition within the genito-urinary tract which may give rise to abdominal symptoms in the interesting right lower quadrant of the abdomen. Those especially interested in abdominal surgery, and less so in genito-urinary surgery, may receive help in the differential diagnosis of obscure conditions located in this region. While it is true that there are diseases of the genito-urinary tract which give rise to the suggestion of an abdominal disease, the reverse is also true. Disease of the appendix and the pelvic organs may give rise to symptoms directing attention to the urinary tract, and give the impression that the condition is dependent upon diseases of the urinary system rather than to diseases of any abdominal organ. I have seen several cases in which such symptoms have been dependent upon an appendix adherent to the ureter, some pre-operative and some post-operative. The former have produced an infection of the urinary tract in some instances, and post-operative adhesions following appendectomy have caused urinary symptoms by involving and constricting the ureter. I have come to consider any instance of hydro-nephrosis in which an appendix operation has been performed that the obstruction to the ureter may most probably be found in the appendix region. I have had cases suffering severely with frequent and painful urination, in which the ovary has been found prolapsed into the pelvis, and adherent to, or adjacent to, the bladder, whereby even moderate distention of the bladder produced most distressing dysuria. Most of the cases have been patients upon whom pelvic operations have been performed, without fixation of the ovary. The removal of the ovary in these cases has resulted in complete relief.

DR. P. E. TRUESDALE: A young man, 28 years old, was referred to me to be operated upon for chronic appendicitis. There was little in his history or physical examination to excite one's suspicion of kidney stone. However, having adopted a routine method of radiographic examination of the kidney fossa before operating for chronic appendicitis, the search for the possible presence of stone in this case revealed as many as five in the right kidney. This print shows five calculi quite clearly. The urine showed a few cells from the kidney pelvis. The kidney was palpable, but not perceptibly enlarged, at least, to the degree that one would expect with the presence of several fair-sized stones. X-ray examination is a simple precaution in similar cases

for one who is not a genito-urinary specialist, and, undoubtedly, would be a safe course for others to pursue who have special diagnostic ability in this field.

## TUMORS OF THE SPINE AND CORD.\*

BY WILLIAM JASON MIXTER, M.D., BOSTON.

THE group of cases here reported includes all those coming under my care in the past four years in which a diagnosis of probable tumor of the spine or cord was made, whether that diagnosis was confirmed at operation or not. Twenty-one of them were first seen at the Massachusetts General Hospital and the other five in private practice. The diverse pathological conditions met with in a series of only twenty-six shows, not only the chances for a surprise which the surgeon has when he operates on one of them, but also the chance of improvement in differential diagnosis which intensive study in the future should develop.

The examination of neurological cases has been changed a good deal in the past few years, and it may not be out of place to enumerate the routine used where tumor of the spine or cord is suspected.

This examination is similar to that used by Dr. Charles Elsberg and, in fact, is based largely on the one published by him.

A careful history should be taken, particular effort being made to bring out the following points:

- Any evidence of malignant disease.
- Syphilis (congenital or acquired).
- Birth injury or congenital defect.
- Loss of strength in the arms or legs.
- Clumsiness or stiffness.
- Weakness or stiffness of the back.
- Pain (location and character).
- Changes in sensation other than pain.
- Change in sexual life.
- Change in sphincteric control.
- General physical examination.
- Neurological examination as follows:
  - Examination of cranial nerves, including the examination of the fundus.
  - Romberg sign.
  - Rigidity of the spine. Presence of kyphos or scoliosis.
  - Tenderness of spinous processes on percussion or manipulation.
  - Paralysis, weakness, wasting or spasticity of any muscles or groups of muscles.
  - Ataxia of either arms or legs.
  - All superficial and deep reflexes.
  - Condition of the anal sphincter.
  - Sensory examination, to include touch, pain and thermal sense, taking care to determine accurately the upper border of disturbance and

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