

Dr. Fred L. Koontz, Louisville, Ky.—I should like to know what the Doctor's experience is in regard to incision in the cartilaginous transplants to the bridge of the nose, where he makes the incision, and also how he takes care of the pug nose effect in these saddle-nose cases; how he turns them down and what principle he depends upon to overcome that defect.

Dr. Coughlin (closing).—I am very enthusiastic about osteoperiosteal bone grafting. I like it well when there is not a large defect. No special apparatus is needed and altogether it is very useful.

The statement of the Doctor that free cartilage transplant quickly undergoes absorption is not in accordance with my observation. In a patient whom I have just shown you on the screen there are three pieces of cartilage in the forehead. They have been there three years. We intended to make him a nose, but another disease has prevented further surgery. These pieces of cartilage are apparently as large now as when transplanted. At the same time as when they were inserted a piece of his scapula, taken from the lower angle with its periosteum on both sides, was inserted in his left arm with the idea of making from it a septum for the new nose. This piece of bone has entirely disappeared.

Again, I showed you a face wherein I had transplanted cartilage to take the place of the lower margin of the orbit, zygoma and the anterior wall of the antrum. That boy came to me in France, in 1918, and I made a repair of the bony losses by osteoperiosteal transplantation taken from the tibia. The case was illustrated in an article in the *Medical Record* May 1, 1920. The pictures were taken some months after the bone and fat transplantation. The result looked perfect, as can be seen by referring to the article. Two years afterward he came again to me with the eye displaced downward and the cheek fallen in. This time I did a cartilage transplant, and it is interesting to note that nothing remains of my osteoperiosteal bone graft but fibrous tissue, as demonstrated at the second operation. The fat, too, had disappeared. I was led to believe that osteoperiosteal flaps always increase in size when placed in contact at the ends with living bone.

I emphasized the fact that the cartilage for cranioplasty must be thick. I have seen Chutro use a very thin piece of cartilage, but in that case the defect was quite small. For the repair of saddle nose, cartilage transplant is the best thing I know.

There is no doubt that a thin layer of bone can be used for replacing a lost part of the skull. There is no certainty that it will endure. If the defect is very large, I do not think it is advisable to remove a corresponding portion of the outer table. Cartilage is more easily procured. One patient shown you had been operated upon twice before. A surgeon had considered the opening too large to close by bone transplant and had closed it with fascia and muscle.

It is more difficult to get the bone than to get the cartilage and so far as I know at present the cartilage does just as well as the bone. Generally, if suppuration occurs, bone graft is lost. This is not true of cartilage transplant, as we have seen in the boy whose face I showed you.

The cartilage healed in, although suppuration occurred. Suppuration was due, I think, to passing a needle into the lacrimal sac.

Replying to Dr. Koontz, for that particular condition the ala should be separated from the bony margin of the nasal opening in the skull; and then through the incision made between the eyebrows a piece of cartilage and bone is inserted and pushed on down toward the tip of the nose. The nose should be pushed down farther than is necessary, as there will be some shrinking. A piece of cartilage *only* in this shrinking process will ride backward and upward on the skull, but if the bit of rib is left attached to the cartilage and this end placed in contact with the skull, or, better, counter-sunk in the same, bony union will occur, and no backward slipping will be possible. I do not recall who first advised this operation, but am proud to say he was an American.

#### THE IMPORTANCE OF EARLY DIAGNOSIS IN ACUTE ABDOMINAL CONDITIONS\*

By J. LOUIS RANSOHOFF, M.D., F.A.C.S., Cincinnati, Ohio.

The acute abdomen has been for more than ten years a favorite medical topic. The literature is monumental, and there must be some valid excuse for reopening so hackneyed a topic. My excuse is that despite the enormous literature, despite the plain teaching of the standard textbooks, men are still to be found in every community who, either through carelessness or ignorance, fail to accept the modern teaching. In medicine, which still is an art rather than an exact science, there is always room for individuality of thought and action. There are, however, certain cases in which the way is clear and the road lost only by the inexperienced or careless traveler.

We all acknowledge that in diphtheria, or even suspected diphtheria, the administration of antitoxin means the saving of life. I think you will agree with me that the man who stubbornly refuses to give antitoxin commits a crime against medicine and a greater crime against humanity. I feel that a man who allows a frank appendicitis to rupture before operation commits the same crime. During the war

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every wounded soldier was given tetanus antitoxin, and thousands of lives were saved. The man who disobeyed this general order was courtmartialled. Unfortunately we have no courtmartial to fall back on in civil practice. In fact, our medical ethics almost force us to protect the doctor who waits with his acute abdominal cases until a general peritonitis has occurred and the comparatively mild case has changed to one of extreme hazard, or even to a fatal outcome.

When we speak of the acute abdomen we naturally first think of the appendix, which is the cause of at least 80 per cent of our acute intra-abdominal conditions. Acute infection of the gall-bladder, the stomach, the pancreas, the intestine and the internal genitalia are, because of their relative infrequency, of secondary moment. In an analysis of the cases reported from any large hospital, we see two groups of acute appendicitis: one, acute suppurative appendicitis; two, acute suppurative appendicitis with perforation. In the one group the mortality is practically zero. In the second group it may run from 20 to 50 per cent, depending on the severity of the case and the generosity of the staff. When I speak of the generosity of the staff I mean this literally, for there are two classes of operators: first, the true surgeon; second, the man who operates for statistics. As we all know, there are men who, with their reputations rather than the welfare of the patient in mind, refuse to operate upon those cases which seemingly have only a small chance of recovery, who selfishly deny the patient his only possible chance for life. Unless the patient is practically moribund, there is no acute abdominal inflammation so advanced that proper operation does not offer some decided chance of recovery.

I remember one of the first cases of this kind which came to my notice. It was during my first year of assistantship to Dr. Joseph Ransohoff.

The patient was a minister, about 50 years of age, who was brought into the old Good Samaritan Hospital, from Maysville, Ky. He had had a perforation five days before. He was tremendously distended; pulse running from 140 to 160; and temperature 104° at the time of operation. He had at the time of operation a septic jaundice, almost the color of a man with a stricture of the common duct. Operation revealed a general peritonitis, from the basal rupture of an appendix.

The abdomen was not only filled with pus, but there was a large amount of free feces in the abdominal cavity. The abdominal cavity was extensively drained and the man made an uneventful recovery.

I remember this case distinctly because it was the first case of its kind which I ever saw recover. Since then these cases have been too numerous to tabulate. I cite it to urge the necessity of giving every patient a chance. Of course I am cognizant of the starvation treatment of these cases, but I have no personal knowledge of its workings.

From the standpoint of emergencies, the cases which must interest us most are the acute appendices and the perforated gastric and duodenal ulcers. The acute gall-bladder comes entirely in a separate category, and as an emergency operation is only necessary for acute gangrene or rupture from injury. Once the diagnosis of appendicitis is made, in my opinion immediate operation is imperative. There is but one exception, and that is in clearly subsiding cases, cases which have evidently passed the climax of the inflammatory process. The diagnosis of a typical appendicitis is so stereotyped that frequently the diagnosis is made by the patient himself. It is almost impertinent for me to reiterate these oft-repeated symptoms, but I can not help calling your attention to a few points, particularly some of the sheet anchors, to which we can no longer tie. Of all the symptoms which we know there are only, in my opinion, three which are worth while: the pain, the tenderness and the rigidity. The pain so reliable in the beginning may disappear at the crucial moment. As you all know, the sudden cessation of pain without an equal absence of rigidity may mean that the safety point has passed and that the filled appendix has ruptured and instead of the simple appendix we have a peritonitis to deal with. The tenderness, too, may mislead us unless we are certain to look for it in the right place. In an ordinarily located appendix, the tenderness is very classical over McBurney's point, where every student first puts his hand in making an abdominal examination. But the appendix is found, in many cases, not ileo-cecal or ileo-colic or pelvic, but retro-cecal, and in these cases the tenderness is not at Mc-

Burney's point, but in the flank. There is one symptom which is rarely, if ever, misleading, and that is the rigidity of the right rectus and right external oblique. There are two kinds of rigidity, the superficial and the deep. In the less severe forms of peritoneal inflammations the very superficial rigidity may be present and the deep rigidity entirely absent. This is, however, particularly true of the sub-acute and chronic rather than the acute cases.

In eliciting tenderness and rigidity in an abdominal examination, it is particularly important that a certain technic should be followed. That is, that the examination should be begun on that side of the abdomen which is free of the disease, leaving the suspected area for the final examination. This prevents any volitional rigidity of the abdominal muscles over the area which the patient himself may suspect is involved.

It is occasionally of interest to make a final diagnosis in an obscure abdominal case after the patient is partially under the anesthetic, when pressure over the area of suspected involvement will cause a rigidity and evidences of pain. By this manoeuvre we have frequently changed the diagnosis just before making an incision from involvement of the gall-bladder, let us say, to that of appendicitis, or vice versa.

Although an increased leukocyte count is of importance as an aid to diagnosis, too much stress must not be laid on its absence. There are some internists who largely depend on the increased leukocyte count as an indication for operation. In some of the most virulent cases, particularly streptococcal infection, there may be absolutely no increase in leukocytosis, not even a comparative increase in the polymorphonuclears. In our own service we make a leukocyte count, for record, in every case of suspected acute abdominal inflammation. We never, however, withhold operation because of the absence of leukocytosis. In children, particularly those under three years of age, the diagnosis of acute appendicitis is difficult, owing to the impossibility of co-operation on the part of the patient. It is the difficulty of diagnosis which makes the mortality of acute appendicitis among children so high.

We must, in these cases, rely entirely on the temperature, fast pulse, and particularly the rigidity. And it is in these cases that the diagnostic intuition accumulated through the observance of many cases plays so large a part. In children it is particularly necessary not to delay operation, as they bear purulent conditions very badly. In these cases it is always necessary to rule out acute lobar pneumonia, as pneumonia in children may start with symptoms almost typical of acute appendicitis. In one instance I removed a comparatively normal appendix from a child of six years of age. All the classical symptoms of appendicitis were present: rigidity, increased leukocyte count, fever and tenderness. The day following the operation the child developed a typical case of lobar pneumonia. This case was seen in consultation with one of our most prominent internists, who made a very careful pulmonary examination without eliciting any evidence of pneumonia. Fortunately, this patient made a complete recovery. Ever since this time I have been particularly careful always to make a thorough pulmonary examination. With every case shown in the study of a case, surprises will come from time to time when we operate for a supposed appendicitis. I have recently reported the case of a child of twelve, with typical symptoms. The operation revealed what I believe to be a unique condition, namely, a pelvic ectopic kidney attached to the right tube with a twisted pedicle. The ureter of course was completely obstructed and therefore the urinary findings were negative.

The acute gall-bladder presents an entirely different proposition from the acute appendix. Except in those rare instances of gangrenous inflammation, operation should not be done during the acute stage. Nearly all of these patients recover from their acute inflammation, so that operation may be more safely done in the interim. The diagnosis here rests on the location of the tenderness under the ninth right costal cartilage, the tenderness in the back and above all the interference with respiration when deep pressure is made under the costal arch. This is an almost infallible sign of gall-bladder inflammation and will rarely lead the surgeon astray. The other

conditions which may be met with in the upper abdomen are particularly acute perforations of gastric and duodenal ulcers and an acute hemorrhagic pancreatitis. These three conditions all start with such tremendous severity that they may be almost classed together as what may be termed an acute intra-abdominal disaster. Shock, rapid pulse and more or less collapse are common to all three conditions. This, with a tenderness and board-like rigidity of the upper part of the recti muscles, certainly points to an immediate operation without the necessity of making an exact diagnosis. Particularly in the perforation of gastric and duodenal ulcers, every hour counts in the patient's chance for his life, and every hour's delay means an increased mortality. Nearly all of those cases operated upon during the first twelve hours recover.

Any one who has seen these acute abdominal disasters will realize the necessity for immediate operation. We must educate the general practitioner and the internist to realize that these conditions are primarily surgical.

There is no need to dwell on the importance of the diagnosis of intestinal obstruction, either from a strangulated hernia or from an internal strangulation. Many of these cases are so typical that a mistake in diagnosis is almost inexcusable, and yet not infrequently cases are brought in during the last stages of the intestinal obstruction with a history of days of suffering. When the patient gives the history of a previous abdominal operation it is practically certain that there is an intestinal obstruction due to strangulation from some inflammatory band of adhesions. The rarer causes, such as an internal hernia, should always be borne in mind, but it is sufficient in all these cases to make the diagnosis of obstruction and leave the exact diagnosis to be determined on the operating table, only realizing the necessity for immediate operation. The same applies to hyper-acute pathologic conditions in the lower abdomen and pelvis. Twisted pedicles, of ovarian tumors, intra-peritoneal ruptures, of some sub-peritoneal vein, of a fibroid uterus, and last but not most important, ruptured tubal pregnancy, are among the conditions which

imperatively demand quick interference. Often, of course, a positive diagnosis can be made, and always it may be tentative. Whether the one or the other matters little, the indications being clear in both for earliest interference.

Time forbids my going any further into this question. I have only attempted to touch on the high lights, leaving out the less important details. What I have endeavored to show is that the acute abdomen is from the beginning a surgical condition, and the earlier operation is undertaken the greater is the chance for the patient's life.

#### DISCUSSION

*Dr. T. H. Hancock, Atlanta, Ga.*—While this paper does not relate to railway surgery, it is a good one for all surgeons to hear. I am satisfied that most of us err in not opening up the abdomen promptly in cases where we suspect rupture of the kidney, rupture of the intestine, rupture of the bladder, or rupture of the spleen. Every patient who has had a severe blow on the abdomen should be watched closely. When he comes in, we of course first catheterize the patient to tell absolutely whether there is any trouble to the bladder. If in twelve hours there is any marked rigidity I believe we should do an exploratory operation in all these cases. I know I have erred in many cases as I look back and see that I could have saved the patient, if I had operated early.

*Dr. J. W. Palmer, Ailey, Ga.*—This brings to my mind a case of railroad surgery where there was an acute abdomen from traumatic injury. It was a section foreman. One of his men, in doing some kind of work where he used a pick or a crowbar, drew back to make his lick and hit him in the abdomen with his instrument. The section foreman was in a great deal of pain. He called in his family physician, who was not a railroad surgeon. There was absolutely no sign of any external or internal injury. The family physician delayed calling in surgical aid. When the surgeon was called in, the man had symptoms of obstruction and abdominal peritonitis and still no external symptoms. On examination he found a mass there. He operated and when he went into the abdomen he found there was a puncture of the intestine. Several inches of the intestine was already gangrenous and the result was this patient died. It cost the railroad a considerable amount of money, all because of the lack of early diagnosis of this internal traumatic injury of the abdomen.

*Dr. L. E. Burch, Nashville, Tenn.*—Dr. Ranshoff brought out three points in making diagnosis: pain, localized tenderness and rigidity. I should like to add another that, in my opinion, takes precedence over the other three: a careful history of the case.

The blood count, in the great majority of cases, is of great value, in others it is of no value. Occasionally one sees a low blood count

with a virulent infection. It is quite easy, in the early stages of pneumonia, to mistake it for appendicitis, for the reason that the physical signs are not present. A pneumonia twenty-four hours will give moccocus in the first twenty-four hours. You will rarely in acute appendicitis get a blood count over thirty thousand in the first twenty-four hours. I have used the blood count in the army in many cases in making a differential diagnosis between pneumococcus pneumonia and appendicitis and consider it of great value.

Dr. E. T. Newell, Chattanooga, Tenn.—I should like to add one more symptom to the class of symptoms that Dr. Ransohoff brought out, and which were elaborated on by Dr. Burch: that is pain followed by nausea. You will find this in every case. This was called to our attention by Dr. Murphy, of all the symptoms to which you can tie. You will find in all acute appendices, or nearly all of them, that the nausea follows the pain. Now in regard to the blood count, as Dr. Burch says, an extremely high leucocyte count in pneumonia is very characteristic. I should like to report a railroad case in discussing this paper. A man had a fracture of the pelvis and was brought in with many minor injuries to other parts of his body and was in an extreme condition of shock. The other man who was riding with him at the time he was hit by the train was killed outright. He was almost moribund. He required a great deal of morphin to relieve his pain and voided some bloody urine. That night and the next morning he had to have two or three additional hypodermics of morphin, showing that he was suffering great pain. He was placed on the Allen stretcher as soon as he was brought to the sanitarium and should not have suffered greatly. In the treatment of cases of fracture of the pelvis, I think that the Allen stretcher is one of the best aids. Of course, we did not manipulate the fracture at all, or at any rate very little, for fear of the fragments cutting deeper into the bladder or into the abdominal viscera. But when we found that the condition was growing worse and at the end of twenty-four hours he was almost moribund, with a hard board-like abdomen, such as we have in duodenal and stomach ulcers which have ruptured, we opened the abdomen and found that a splicle of bone of the transverse ramus of the os pubes had punctured the bladder and the abdomen was full of urine and blood. This case was one in which we had extreme complications, and it was one of those extreme cases Dr. Ransohoff mentioned in the first part of his paper, where it was hardly worth while to go into the case. We introduced a drain in the intestines, one in the abdomen and one in the bladder. The man recovered. Later we closed the intestines and bladder, but failed in the bladder closure at that time, as the patient pulled his urethral catheter out and the bladder sutures gave way. Later on we went back and closed the bladder successfully. The fracture of the os pubes united firmly. The patient is now back at work and doing well. I merely mention this case for it was an acute abdomen which hardly seemed worth undertaking, which recovered.

Dr. R. B. James, Danville, Va.—The subject of abdominal injuries, not covered by the paper under discussion, is such an important matter to

railroad surgeons that I shall tell you of an experience I had lately. Recently I read in the *International Journal of Surgery* an article in which the writer emphasized the danger in which appeared to be slight abdominal injuries. Cases that showed no shock or pain may prove fatal in a few days. Death may be caused by ruptured blood vessels or internal viscera, which show no symptom at the time but develop peritonitis or shock when it is too late to interfere. I had this paper in mind when called the other day to see a saw mill man struck an hour before in the side of the abdomen by a piece of flying timber. He had no symptoms to suggest internal injury. Pulse and respiration were normal. There was no pain, no shock, and the expression on the face was normal. Having this article in mind I spent an hour observing the patient. He did not complain of any discomfort but vomited the food he had eaten several hours before. There was an abrasion on his side over the spleen and left kidney. Seeing the size of the piece of timber that struck him I thought it probable that he had internal injuries, and advised an exploratory incision. The patient readily consented. I sent him to the hospital and opened the abdomen four hours after the accident.

In the operating room were other doctors who said it was useless to open him up, that with no symptom there could be no serious internal injury. I told them if they had seen the piece of timber that struck him they would not be so sure. I found the abdomen full of blood. The spleen was ruptured and bleeding furiously, necessitating its removal. The patient made an uneventful recovery and seems to be well today. The gentleman who has just spoken seemed to think that a surgeon could make a diagnosis in these cases with more certainty than a medical man. In many of these cases no man could make a diagnosis. There are no symptoms on which to hang his diagnostic hat, so to speak. You look around and see what has happened, what caused the injury and then decide, remembering in case of doubt that it is safer to open up and see.

Dr. J. S. Turberville, Century, Fla.—I think it well to review what Dr. Murphy had to say as to the appearance of the symptoms. He mentioned the following points upon which to make a diagnosis of acute appendicitis. This applies to all inflammatory abdominal conditions: pain, nausea and vomiting; nausea or vomiting; increased pulse rate; rising temperature; localized tenderness; and rigidity. Now, the exceptions are quite a few where you don't have those. Occasionally you will find tenderness without rigidity. Occasionally you will find rigidity all over the abdomen. I think we can explain why we don't have blood count symptoms. It doesn't matter whether it is streptococcus or what kind. The inflammation is so violent that it chokes out the circulation. Then you don't have fever, you don't have leucocytosis, and you don't have any increased pulse rate, and you may not have so much pain because the appendix is dead. This is a very dangerous condition. Bearing that in mind, after you have gone through Dr. Murphy's symptoms as they appear, there is one point always to remember, that you won't always have fever, and you may not have rigidity.