Removal of Non-Diseased Appendix Results in Problems for Patient (and Surgeon)

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The Case

This case involves a man who underwent a right inguinal hernia repair and appendectomy. The patient subsequently developed peritonitis and osteomyelitis of the pubic bone. **Question:** Is it safe to remove a non-diseased appendix during an elective hernia repair?

A middle-aged man with bilateral inguinal hernias decided to have only the right hernia repaired. During the course of the repair, the surgeon identified a sliding indirect hernia and a direct inguinal hernia. The appendix appeared abnormal and was located in the sliding inguinal hernia (Amyand hernia). The surgeon opened the sac and removed the appendix. He then closed the hernia sac, repairing the inguinal hernia by placing a large Marlex mesh plug into the direct defect and then using an overlay patch to complete the procedure. In his deposition, the surgeon explained that he removed the appendix because the patient had a rare condition in which the appendix herniates through the peritoneal sac. He was concerned that the hernia would become incarcerated, if not removed. He believed the use of mesh to be a common technique and that the patient was at no higher risk for infection than any other hernia patient. The nature of the patient's hernia made the patient at risk for recurrence, if he did not use surgical mesh.
Seven days after the operation, the patient presented to the Emergency Department complaining of fever, increased pain and increased right groin swelling. The surgeon admitted him to the hospital for treatment of a postoperative wound infection and cecal abscess. The wound culture was positive for E. coli, an enteric pathogen. The plaintiff’s expert testified that this pathogen would have originated as a result of the appendectomy and the cutting through of a hollow viscous. The patient was treated with IV antibiotics and discharged home. Two months later he was readmitted to the hospital with pain and possible osteomyelitis of the pubic bone. That time, he was discharged home with an order for extended IV antibiotic therapy. During this period the patient continued to have pain and was referred to a pain clinic for neuritis and gluteal tendinitis. Over the next three months, the patient’s pain extended and he underwent ileoinguinal nerve blocks and outpatient physical therapy. Eventually, the patient was readmitted to the hospital with the diagnosis of an infected mesh and osteomyelitis. Seven months from the date of his original surgery, the patient sought help from a second general surgeon. That surgeon, assisted by an orthopedic surgeon, removed the infected mesh. However, no signs of obvious osteomyelitis were present. The hernia was closed using a Bassini-type repair\[i\].

One year from the date of his original surgery, the patient continued to complain of residual pain and nerve injury.

**Risk Management Commentary:**

The plaintiff alleged that the surgeon breached the standard of care when he removed a non-inflamed appendix during the elective open right inguinal hernia repair. The removal of the appendix converted a clean case into a clean-contaminated case, which markedly increased the risk of serious infection. Defense experts made the following observations:

- The performance of the appendectomy for a non acute appendicitis in and of itself was a breach of the standard of care, since there was no clinical indication for removal of the appendix. Further, the only justification to remove the appendix during a hernia repair is if the appendix is inflamed or it has a tumor.
- In the presence of a contaminated field, the surgeon then placed two pieces of mesh which constituted foreign bodies. The placement of any foreign body in a contaminated field is a breach of the standard of care, because it can act as a nidus for infection.
- The patient developed postoperative ileoinguinal neuralgia. The operative note implied that a nerve was dissected out and replaced back in the repaired area. The nerve is normally located inside the spermatic cord. In order to replace it there, the nerve would have had to be dissected out or lifted in some way, which can lead to neuralgia. This expert advised that this nerve should not be touched in any way. He was also critical of the use of a plug because “it can migrate within the body; if the appendix is sliding into the hernia, it can be pushed back into the abdomen.”

In light of the negative expert reviews, the extent of the patient’s post-operative complications and extended treatments, the surgeon agreed to settle the case.

In an elective procedure without a true emergency, straying from the planned surgical course can cause more harm than good. Instances such as this, should be used to reinforce existing guidelines, as well as develop new guidelines based on the analysis of judgment-related errors.

The **Bassini Repair** is a technique in which the surgeon sutures the conjoined tendon to the inguinal ligament, which slides the patient’s own muscles together to cover the hole in the abdominal wall and repair the hernia. The Bassini technique is generally used only if a mesh repair is inadvisable.
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