PHOTO-QUIZ

A 28-year old young man presented with a complaint of low-back pain. He had had this problem for 2 years, and the pain had been radiating to his left calf for 4 months. The patient had undergone surgery for lumbar disc herniation 3 months prior to presentation. Physical examination indicated good health status. There was erythema and discharge at the incision site without tenderness and swelling. The straight leg-raising test was positive at near to 80° on the left. The patient's left hamstring muscle strength was 4/5, and he had normal patellar deep tendon reflex on that side. Routine laboratory testing (complete blood count, erythrocyte sedimentation rate, blood biochemistry panel) revealed nothing abnormal. Magnetic resonance imaging (MRI) of the lumbosacral spine showed a laminectomy defect at L4 up to S1 and a mass lesion in the posterior paravertebral region at L5 level. The mass appeared as hypointense spinal cord tissue on T1-weighted images and hyperintense on T2-weighted images. Injection of contrast medium revealed an enhanced hyperintense rim around a hypointense center (Figs 1, 2, 3, 4 MRI images revealing an enhanced hyperintense rim around a hypointense center). What is the most probable diagnosis? (see page 138)
ANSWER to PHOTO – QUIZ

The answer is gossypiboma. In medical literature, ‘gossypiboma’, which is derived from Latin ‘gossypium’ (cotton) and Kiswahili boma (place of concealment), is the term used to describe a retained mass within the body. Other synonyms for gossypiboma are textiloma and muslinoma. Gossypiboma can trigger a granulomatous reaction after posterior spinal surgery and may result in the formation of a sizeable mass or abscess formation in the paravertebral region. Cotton pads, towels and sponges are used to achieve hemostasis during surgical procedures, including dissection for intervertebral disc herniation and other spinal problems. Although precautions are taken to avoid leaving such materials behind, mistakes do happen and the resultant foreign bodies can cause various clinical and radiological manifestations.

In the early period after surgery, these forgotten materials can lead to infections and abscess formation. However, some remain clinically asymptomatic for many years, and then cause a foreign body reaction in the surrounding tissue, with new clinical signs indicating significant mass effect. Cotton is not the only material that can lead to such problems. The literature contains reports of other hemostatic materials (such as gelfoam and surgicel) causing foreign body reactions that could not be distinguished from recurrent tumors on MRI. These patients usually present with low back pain or symptoms of infection, such as fever and local tenderness with/without discharge from the incision site.

On CT, a spongiform pattern with gas bubbles or a heterogeneous low attenuation mass with a thin high-attenuation capsule are the characteristic features of retained surgical sponges. Thus, gossypiboma should be included in the differential diagnosis of any appearance like paravertebral hematoma in the postoperative period. In case of gossypiboma there is marked enhancement in postcontrast scans. The introduction of MRI has made it possible to diagnose most foreign bodies accurately. Findings differ according to the radiological modality that is used to investigate the patient. Cotton sponges and cotton fibers exhibit characteristic features on plain radiographs, whereas the findings on computerized tomography and ultrasonography are less diagnostic. The MRI appearance of foreign materials left behind during surgery can differ greatly, depending on the time elapsed since the operation and the type of foreign body reaction that occurs. There are two types of foreign body reactions: aseptic fibrous tissue reaction, which involves adhesion formation, encapsulation and granuloma formation, or the exudative-type tissue reaction, which leads to abscess formation. In general, most lesions caused by foreign bodies are hypointense on T1-weighted images and hyperintense on T2-weighted images.

Surgical complications are becoming more frequent, and this is prompting surgical teams to be even more careful. It is possible to overlook cotton and gauze pads in the surgical field. All materials that are placed in the wound temporarily must be counted many times with meticulous care. Cotton pads are not safe because they can break into fragments during manipulation. Once hemostasis is achieved, the operative site should be flushed with saline and carefully examined for foreign materials. In fact, awareness of this problem among neurosurgeons and radiologists is essential to avoid unnecessary delay in the diagnosis and to avoid morbidity.

REFERENCES