

# Paraspinal gossybipoma: A case report and review of the literature

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## ABSTRACT

Spinal or paraspinal retained surgical sponges (gossybipoma or textiloma) are rare incidents and mostly asymptomatic in chronic cases, but can be confused with other masses such as a hematoma, an abscess or a tumor. In chronic cases, the presentation can be as late as decades after the initial surgery; however, some gossybipomas cause infection or abscess formation in the early stages. The authors report a 40-year-old woman with a history of operation for lumbar disk herniation before 8 months, and got admitted with a complaint of serous fluid leakage from the operation wound. In this report, the authors discuss the clinical presentation, the radiologic findings and the differential diagnosis of gossybipoma.

**Key words:** Gossybipoma, retained surgical sponge, spine, surgery, textiloma

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## Introduction

Although rare, retained surgical sponges can be found subsequently after neurosurgical operations. While the term “textiloma” is used to describe a mass lesion consisting of surgical sponge, the term “gossybipoma” is reserved for both the mass of sponge and the foreign body reaction around it.<sup>[1,2]</sup> These pathologies can mimic other common spinal mass lesions such as hematoma, abscess, soft tissue tumor, etc. Their presentation is well known but varies with each case due to different kinds of reactions of body. In literature, 46 cases of gossybipoma involving the spine have been reported;<sup>[1,3,4-19]</sup> however, it is thought to be more than this number because of medico-legal issues. In this report, we present a case of paravertebral gossybipoma, with a short review of the clinical presentation, radiologic findings and differential diagnosis of these lesions.

## Case Report

A 40-year-old woman presented with a history of spinal operation for L4–L5 lumbar disk herniation before 8 months and got admitted with non-purulent serous leakage from a small (5 mm) detachment in the surgical wound. The neurologic examination was normal. The wound was minimal erythematous at the detachment

site, but there was no tenderness, swelling or fluctuation. There was no fever, and routine laboratory tests including complete blood count, erythrocyte sedimentation rate, c-reactive protein and blood biochemistry were all normal. Microbiologic investigations of the serous leakage revealed no pathogens. While waiting for the microbiological results, treatment with first-generation cephalosporin was started and continued for 4 days, and the serous leakage stopped immediately with secondary healing of the wound in a 1-week period. However, the patient's same complaints recurred, and thus she got admitted again to our clinic. A computed tomography (CT) of the lumbar vertebrae revealed a hyperdense mass lesion located in the left side of the previous operation site. Magnetic resonance imaging (MRI) showed a mass lesion in the left paravertebral area, which was hypointense on T1- and T2-weighted images, with peripheral hyperintense ring in T2-weighted images. MRI post-contrast images showed ring enhancement of the lesion [Figure 1]. CT-guided biopsy was performed but no materials were obtained.

The patient was operated by lumbar midline reincision, and the exploration of the left paravertebral area revealed a retained sponge. The sponge was found adherent to the surrounding soft tissue by the new formed fibrotic tissue, which required individual dissection of these fibrotic attachments. No concomitant abscess was found. The

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lesion was removed with no intraoperative complications. Histopathologic examination revealed mononuclear cell infiltration and fibrosis formation around the retained sponge [Figure 2]. Postoperatively, treatment with first-generation cephalosporin was continued. The patient's complaints showed improvement with no neurologic deficits, and the patient was discharged on postoperative day 3 without complications.

## Discussion

Many different kinds of hemostatic agents – absorbable and non-absorbable – are used to control intraoperative bleeding in neurosurgical operations. Non-absorbable materials include various forms of cotton pledgets and

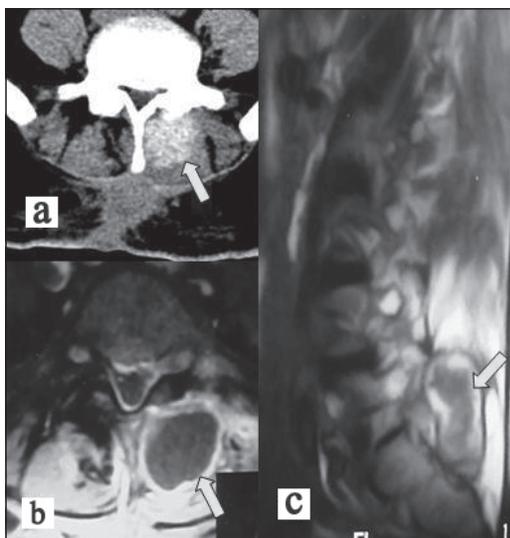
synthetic hemostats, which should be removed before surgical closure.<sup>[20]</sup>

Retained surgical sponges can be found following abdominal, gynecologic, urologic, thoracic, orthopedic or neurosurgical procedures. They are encountered in abdominal and thoracic cavities more commonly but they are also reported after extremity and spinal surgeries. Retained sponges are more common in obese patients and after emergency surgery.<sup>[15]</sup> A retained surgical sponge is thought to be a common entity; however, due to the medico-legal issues, only a few cases in the literature have been reported. The reported incidence of these lesions varies between 1/1000 and 1/10,000.<sup>[21]</sup>

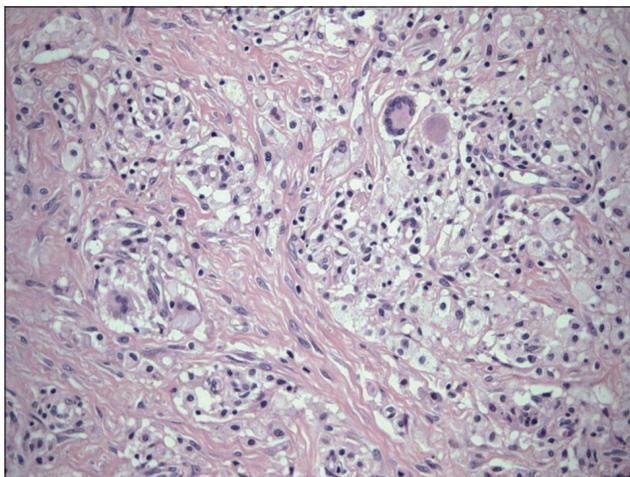
While the term “textiloma” is used to describe a mass lesion consisting of surgical sponge, the term “gossybipoma” is reserved for both the mass of sponge and the foreign body reaction around it.<sup>[1,2]</sup> In the literature, there are 46 reported cases of gossybipoma after spinal surgery since 1965.<sup>[1,3,4-19]</sup> In these reports, patients had presented mostly with complaints of back pain, common motor weakness and/or sensory deficits in neurologic examination, with no infectious findings, at which the placement of surgical sponge occurred at least a couple years ago before the admission.<sup>[15,17-19]</sup> On the other hand, some cases admitted with fluid leakage after only a short time of the first operation.<sup>[22]</sup> In our case, the patient presented with sterile serous leakage from the operation wound, 8 months after the previous operation.

After surgery, the body gives two types of foreign body reactions against retained sponges: (1) the exudative type tissue reaction, which leads to acute abscess formation, with a tendency to form fistulas through the skin and (2) aseptic fibrous tissue reaction, which involves slow adhesion formation, such as encapsulation and granuloma formation.<sup>[5]</sup> While the time interval to clinical presentation is short with the exudative type tissue reaction, it ranges to even decades after surgery with aseptic fibrous tissue reaction.<sup>[11]</sup>

Surgical sponges with radiopaque markers are used now in most of the medical centers. Due to this imaging characteristic of the gossybipomas, plain radiographs and/or CT scan can be useful in cases suspected with these lesions. However, gossybipomas may not be easily recognized even on CT scans.<sup>[23]</sup> Kopka *et al.*<sup>[24]</sup> had reported 13 patients with gossybipomas in thorax and abdomen, and remarked that the radiopaque marker inside the gossybipoma was seen in only nine patients (69.2%) and even then did not always lead to diagnosis. In our case, the gossybipoma was revealed in CT scans as a hyperdense mass lesion, although it was not diagnostic for this lesion.



**Figure 1:** Lumbar imaging of our case revealed a paravertebral mass lesion located in the left side of the previous operation site (arrows). (a) Axial CT scan, (b) axial post-contrast enhanced MRI, (c) sagittal T2-weighted MRI



**Figure 2:** A photomicrograph shows the mononuclear cell infiltration and fibrosis formation around the retained sponge (H and E, ×200)

**Table 1: Differential diagnosis of paraspinal gossypiboma**

Abscess
Hematoma
Residual tumors
Recurrent tumors

Because the differential diagnosis of paraspinal lesions in patients with history of spinal operations include hematomas, abscess or residual/recurrent tumors, MRI with intravenous contrast enhancement is known to be the best radiologic investigation modality in these situations [Table 1]. Kim *et al.*<sup>[5]</sup> stated that MRI usually shows a well-defined mass with a fibrous capsule that exhibits low signal intensity on T1-weighted images compared with the signal intensity of the paravertebral back muscles, high signal intensity in the center with hypointense rim on T2-weighted images, and strong peripheral enhancement in post-contrast images. On the other hand, MRI of our case demonstrated a mass lesion, which was hypointense on both T1- and T2-weighted images, with peripheral hyperintense ring in T2-weighted images and peripheral enhancement in post-contrast images. These findings were different from what had been stated in previous reports.<sup>[5,10,25]</sup> Accordingly, we believe that despite the importance of the MRI in the diagnosis of gossypiboma lesions, the definitive diagnosis must be mainly aided by the high suspicion profile of the physician and the intraoperative findings.

## Conclusion

In patients with the history of spinal operation, gossypibomas should always have a place in the differential diagnosis of newly found lesions, as it is believed that they are much more common than they are reported. MRI is the best radiologic modality for the diagnosis. However, no pathognomic radiologic characteristics are defined for these lesions. For this reason, the definitive diagnosis must be mainly aided by the high suspicion profile of the physician and the intraoperative findings. Moreover, gossypibomas are rare, but possible to occur. Thus, it must be remembered that careful inspection of the surgical field before closure is still an important basic rule in surgery.

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