

Role of Radiology in the Diagnosis of an Uncommon Site of a Common Gossypiboma

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PRESENTATION OF CASE

A 53 year old man presented with right sided neck swelling which was tender on palpation along with symptoms such as high grade fever and sweating since 4 days. No significant and relevant personal and family history was present. Patient had a successful operative history for a benign neurogenic tumour in right infratemporal fossa 1.5 months back. Patient was relatively asymptomatic before 10 days. He then gradually developed a swelling at the operative site which sooner became tender and was accompanied with high grade fever 4 days back. Patient also complained of mild restriction of neck movements as well. He then came for detailed examination and then was referred for MRI examination as a part of protocol.

Radiological Features

Routine MRI examination showed a well-defined circumscribed lesion at operative site in right infra temporal fossa which appeared to be peripherally thick walled hypo intense in T1W images (green arrow Fig. 1) and hyper intense in T2W images (green arrow Fig. 2). On further sequences it was noted that a diffuse hypo intense central part is noted in all sequences which was prominent in GRE (Gradient Recalled Echo) images showing again hyper intense thick wall (pink arrow in Fig 3) and central hypo intensity (blue arrow in Fig. 3) suggesting multiple air foci. Haemorrhage was excluded in view of lack of T1W hyper intensity. On STIR (Short Tau Inversion Recovery) images no significant other information was gained about the lesion (green arrow in Fig. 4).

Observing the whole examination at first it looked like an abscess but due to lack of diffusion restriction and surrounding soft tissue swelling, this differential is ruled out.

DIFFERENTIAL DIAGNOSIS

- **Recurrent Neoplasm**

They appear hypointense in T1W images, hyper intense in T2W images and have an ill-defined margins without any surrounding thick wall and has intense internal vascularity without any air foci.

- **Lymphocele**

It is purely a cystic structure which doesn't have any air foci, haemorrhage or solid content.

Thus lack of surrounding soft tissue swelling, ill-defined margins, internal necrosis, internal vascularity and haemorrhage led to the final diagnosis of gossypiboma. Post surgically, there was a surgical pad found with significant inflammatory tissue attached to it.

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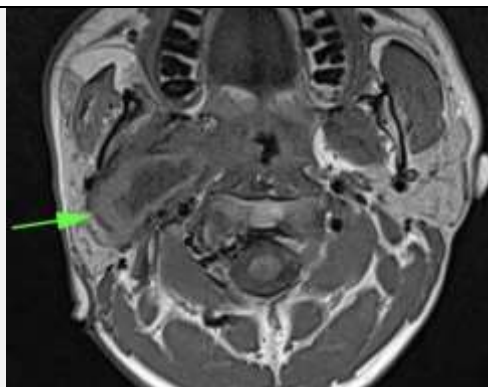


Figure 1



Figure 2

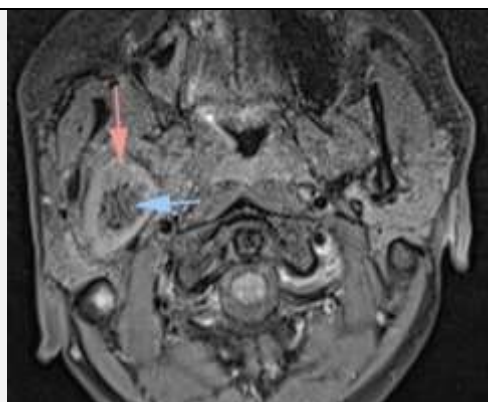


Figure 3



Figure 4

DISCUSSION OF MANAGEMENT

(a) Pathology

The term "gossypiboma" is derived from the Latin word *gossypium*, meaning cotton, and the Swahili word *boma*, meaning place of concealment.¹ Gossypibomas are most frequently diagnosed in the intraabdominal cavity. However, they can also be found in the chest,² extremities,³ CNS,^{4,5} and breast.⁶ They have been reported to occur after surgical procedures such as abdominal, cardiovascular, orthopaedic, and even neurosurgical operations. We report a case of gossypiboma in a 53 year old male who underwent a surgery for tumour in infratemporal fossa, later presented with symptoms of infection mimicking abscess at operative site which turned out to be gossypiboma on MRI. In acute manifestations, the patient usually presents with nonspecific abdominal pain, fever, vague abdominal lump, nausea, vomiting, abdominal wound discharge, or sepsis.⁷ Gossypibomas of sites such as intrathoracic cavity, paraspinal area, cranium, breast, and neck present as symptoms related to location chronic cough, back pain, mass effect and discharging sinus.

(b) Imaging Features

Imaging features depend on the time since surgery, the presence of secondary infection, communication of the gossypiboma with hollow viscus or external skin wound, and the modality of the radiological investigation. Radiographs are the most commonly used modality to detect gossypibomas.^{8,9} Common appearance of retained surgical pad includes fine linear radio-opacity and associated mottled air or mass effect or density over adjacent soft tissues.¹⁰

Computed tomography (CT) is a sensitive method for detecting gossypibomas which shows a spongiform pattern with a radiodense linear structure. There is a peripheral rind of calcification around a reticular mass, as a characteristic feature of gossypiboma, was described in a report by Lu et al.¹¹ They found that the "calcified reticulate rind" sign was helpful in identifying the retained gauze piece in chronic cases where the gas bubbles within are gradually absorbed. Another characteristic appearance described is of an inhomogeneous, low-density mass with a thin high-density capsule showing marked enhancement in post contrast studies. On magnetic resonance imaging (MRI), a combination of cotton, water, oedema due to the inflammatory and fibrous reaction, results in a retained sponge / gauze appearing as a soft-tissue mass with a thick well-defined capsule, having a whorled internal configuration on T2-weighted images. Depending on the amount of water content, the signal intensity on T2-weighted images varies from low to high signal intensities. Post-contrast imaging shows peripheral enhancement.¹²

With increasing clinical use of PET / CT, few case of imaging appearance has been reported. In reported gossypibomas, low central radio-tracer uptake with high peripheral uptake corresponding to active inflammatory reaction near fibrotic capsule has been demonstrated.^{13,14}

(c) Management

Once diagnosed, surgical removal of the foreign body is the mainstay of treatment including elective laparotomy with adhesiolysis.

FINAL DIAGNOSIS

Due to the varied appearances of gossypiboma, it is difficult to diagnose them on radiographs. Clinical information, coupled with a high index of suspicion, is mandatory for diagnosis. In dubious cases, confirmation with a second imaging modality can be helpful. Radiologists play a key role in diagnosing retained surgical materials. A reasonable knowledge of this entity with its common presentations should be possessed by all radiologists.

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Disclosure forms provided by the authors are available with the full text of this article at jebmh.com.

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