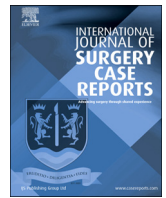




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## Intrapericardial gossypiboma: Rare cause of intrathoracic mass

Anil Kumar<sup>e,\*</sup>, Shiv Shankar Paswan<sup>a</sup>, Rajinder Prashad<sup>b</sup>, Rekha Kumari<sup>c</sup>, Bindey Kumar<sup>d</sup><sup>a</sup> Department of General Surgery (Trauma & Emergency), All India Institute of Medical Sciences, Bhuvneshwar, India<sup>b</sup> Department of Surgical Discipline, All India Institute of Medical Sciences, New Delhi, India<sup>c</sup> Department of Anaesthesia, Patna Medical College & Hospital, Patna, India<sup>d</sup> Department of Paediatric Surgery, All India Institute of Medical Sciences, Patna, India<sup>e</sup> Department of General Surgery, All India Institute of Medical Sciences, Patna, India

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## ABSTRACT

**INTRODUCTION:** Gossypiboma is a retained surgical sponge inside our body after surgical intervention. It is most commonly found in abdominal cavity. Its occurrence in thoracic cavity as intrapericardial gossypiboma is extremely rare.

**PRESENTATION OF CASE:** We present a 25 year old male with complaint of chest pain for 1 year. He had a history of total correction of Tetralogy of fallot 14 years back, at another hospital. On clinical examination and investigations including contrast enhanced computed tomography (CECT) of thorax; diagnosis of right anterior mediastinal mass of germ cell tumor was made and planned for thoracotomy. On exploration, the gauze piece of 31 cm was removed from the pericardial mass and a final diagnosis of gossypiboma was made.

**DISCUSSION:** Although gossypibomas are commonly reported in abdominal and pelvic surgery but a prolonged operative time, untrained staff, poor communication in sponge count may favour the occurrence in thoracic cavity. A patient with intrathoracic gossypiboma usually presents with chest pain, dyspnoea, thoracic mass or fever. CECT and Magnetic resonance Imaging (MRI) are useful imaging modality in such cases. Surgical exploration with histopathological examination confirms the diagnosis of gossypiboma.

**CONCLUSION:** In a postoperative patient who presents with chest pain and intrathoracic mass, gossypiboma should be a differential diagnosis even it is rare to occur in thorax.

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## 1. Introduction

The word “gossypiboma” is derived from the Latin word gossypium (Cotton) and the Swahili bomba (place of concealment). It describes a mass in the postoperative surgical bed comprising of central cotton matrix surrounded by foreign body granuloma. The term “Gossypiboma” was first described by Wilson in 1881. It has an estimated incidence of 1/1000 to 1/10000 surgeries with the most common site being inside the abdomen (56%) followed by pelvis (18%) and thorax (11%) [1,2]. We report an intrathoracic gossypiboma which presented with chest pain after 13 years of thoracic surgery. Intrathoracic gossypiboma is an extremely rare condition and only few cases have been reported in literature. Our case report is in accordance with SCARE criteria [16].

## 2. Case report

A 25 year old male patient referred to our institute with complaint of right sided chest pain for the last one (1) year. During clinical work up, it was found that he had history of cardiac surgery for the correction of tetralogy of fallot (TOF) 14 year ago. The chest pain was diffuse, dull aching and non-radiating in character. Chest pain was not aggravated by exertion. There was no history of cough, haemoptysis, dyspnoea, weight loss or loss of appetite. Patient was non-smoker and no history of diabetes or hypertension. His general examination and laboratory parameters were within normal limits. On examination of chest, air entry was decreased on right side. On cardiovascular assessment, parasternal heave on right side, diastolic murmur in second right intercostal space, loud second heart sound and sternotomy scar were present. Echocardiography showed status post TOF correction and extrinsic compression of heart by mass. Plain chest radiograph showed a large opacity in right anterior mediastinal area (Fig. 1). CECT Thorax axial section showed fluid containing well defined mass in the right middle mediastinum with small hypodense area (Fig. 2(a)) and in the lower part of lesion there was an irregular soft tissue density

\* Corresponding author at: Gen Surgery (Trauma & Emergency), All India Institute of Medical Sciences, Type-5, Block-B, AIIMS Residential Complex, Hydraulic Road, Patna, India. Tel.: + 91 9835699103.

E-mail addresses: [dranil4@gmail.com](mailto:dranil4@gmail.com) (A. Kumar), [drshivanita@gmail.com](mailto:drshivanita@gmail.com) (S.S. Paswan), [drrajinderparshad@aiims.ac.in](mailto:drrajinderparshad@aiims.ac.in) (R. Prashad), [dr.rekha911@gmail.com](mailto:dr.rekha911@gmail.com) (R. Kumari), [bindeyster@gmail.com](mailto:bindeyster@gmail.com) (B. Kumar).

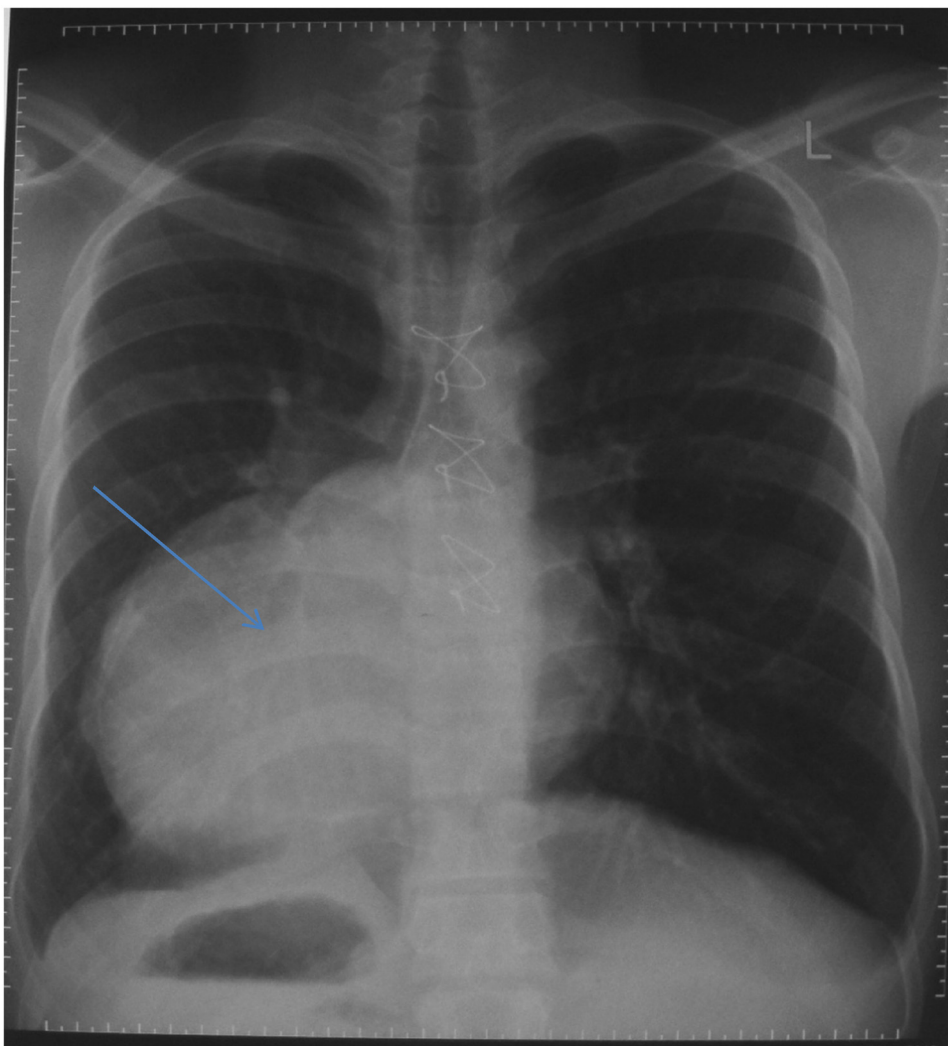


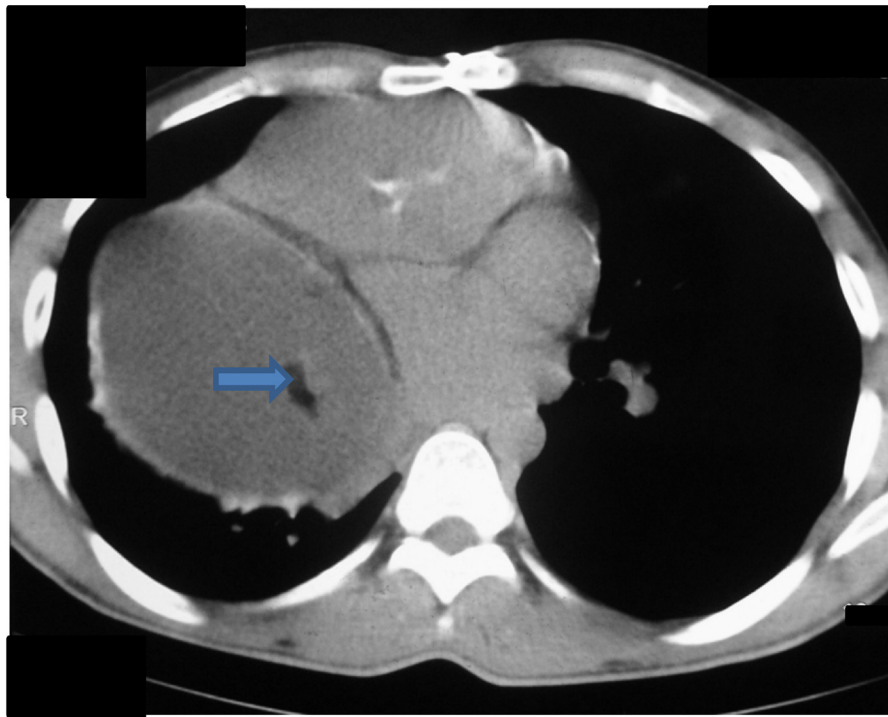
Fig. 1. Right Anterior Mediastinal Mass (Arrow).

mass with flocculent appearing material (Fig. 2(b)). The wall of the cystic lesion is thin with few speculation of calcification. CT guided Fine Needle aspiration cytology (FNAC) was done which showed predominantly areas of necrosis with admixed fragment of dystrophic calcified material. On these clinical and radiological findings, diagnosis of right anterior mediastinal mass of germ cell tumor was made and planned for thoracotomy. After general anesthesia in supine with 45° right up position, right anterolateral thoracotomy through 5th intercostal space was performed.

Intraoperatively, a mass was found in right anterior mediastinum (Fig. 3) and its exploration revealed a retained gauze piece. The gauze piece was removed which measured 31 cm in length (Fig. 4). Intra-operative video recording also showed the removal of 31 cm retained gauze from pericardial space. After securing hemostasis and insertion of two chest tubes one at base and other at apex, the wound was closed in layers. Postoperative period was uneventful and the patient was discharged on 6th postoperative day. The histopathological examination showed the presence of fibro-collagenous tissue with the infiltration of lymphohistiocytic infiltrate throughout the section with presence of occasional centrally placed giant cell. Giant cell showed the eccentrically placed smudged nuclei, confirming the diagnosis of gossypiboma (Fig. 5). He has now been on our follow-up for the last 12 months and is doing well. Informed consent was taken from the patient for the publication of this case report and accompanying images.

### 3. Discussion

The intrapericardial gossypiboma is rarely reported because of fear of medicolegal action; remains asymptomatic as well as its rare occurrence [3,4]. The gossypiboma is most commonly encountered after intraabdominal and pelvic surgery but also occurs after cardiovascular surgery. The conditions such as emergency surgery for prolonged operative time, untrained staff, haemodynamically unstable patient, poor communication in sponge count, unplanned change of operative steps and obesity favour the occurrence of gossypiboma [3,5]. The pleural and pericardial cavities are the commonest site for intrathoracic gossypiboma and constitute only 11% of all cases of gossypiboma [6,7]. The clinical presentation of gossypiboma is variable which depends upon the size as well as location of retained sponge and also patient remains asymptomatic even for many years. In our case patient presented with chest pain after 13 years of first surgery. Sumer, Nemati M.H and Szarf G had reported intraabdominal, mediastinal and intrathoracic gossypiboma after 23 years, 25 years and 40 years of caesarean, closed mitral commissurotomy and cardiac surgery respectively [7–9]. The role of radiological images with its description are not well explained for intrathoracic gossypiboma in the literature. Chest radiograph is the most commonly used imaging for intrathoracic gossypiboma which has a radio-opaque marker [6]. In our case, gossypiboma appeared as soft tissue mass as it



(a)



(b)

**Fig. 2.** (a): CECT Thorax axial section showing fluid containing well defined mass in the right middle mediastinum with small hypodense area (Arrow). (b): Lower part of the lesion showing an irregular soft tissue density mass with flocculent appearing material (arrow). The wall of the cystic lesion is thin with few speculation of calcification.

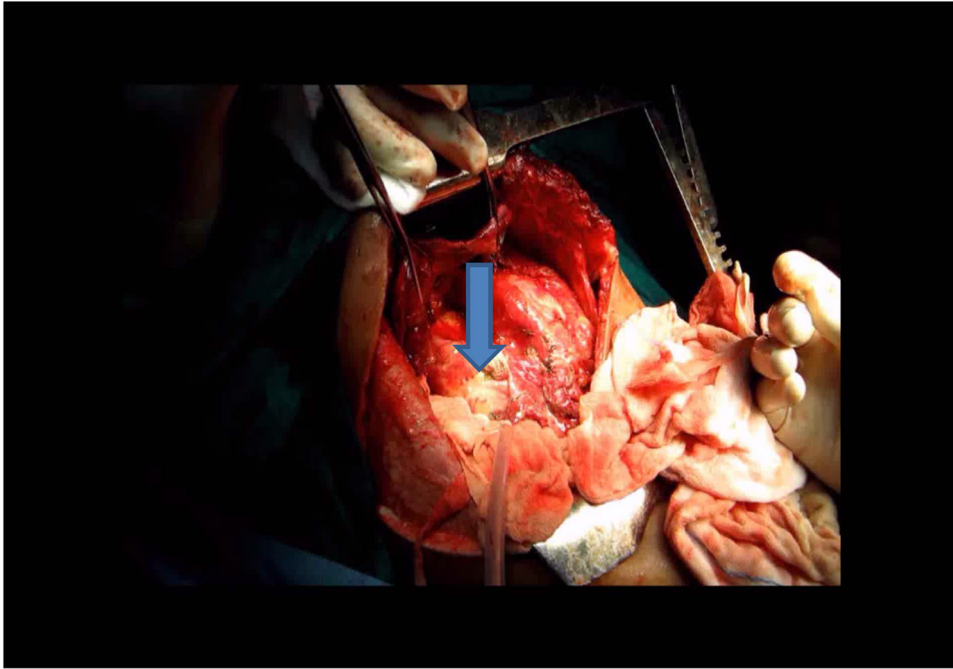


Fig. 3. Showing retained gauze piece.

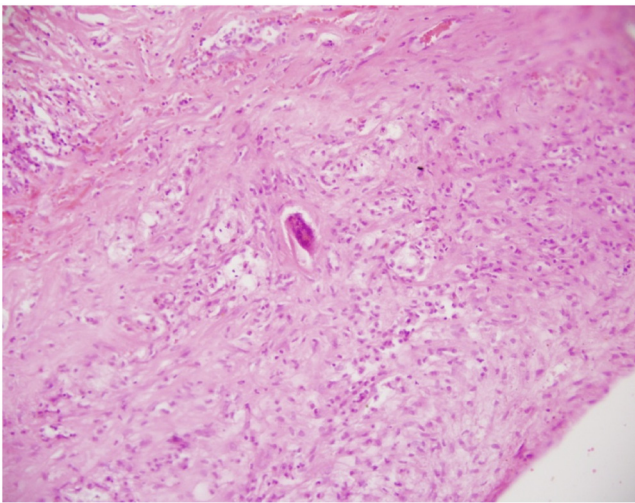


Fig. 4. Showing the removed gauze piece (31 cm in length).

was devoid of radio-opaque marker similar to other cases [7,10]. Computed Tomography (CT) is the imaging modality of choice for intrapericardiac gossypiboma. In an early presented case, CT scan for intrathoracic gossypiboma shows a heterogeneous hypodense mass with a central spongiform pattern containing air bubbles. On the other hand in a late presented case, air bubbles disappear, fibrous reaction starts and results in the formation of a solid mass like in the present case [7].

In the late presentation if radio-opaque markers are not used, radiological studies are not useful in the diagnosis of intrathoracic gossypiboma [11]. In our case, preoperative diagnosis could not be established because chest CT showed non-specific solid mass similar to case reported by Nemati M.H [9]. On contrast enhance-

ment peripheral rim enhancement of curvilinear stripes can be observed as in our case [1,12,13]. Magnetic resonance is the best modality of pre-operative diagnosis in absence of radio-opaque marker and air bubble for intrathoracic gossypiboma [14]. Surgical exploration is the therapeutic as well as diagnostic approach for intrathoracic gossypiboma as in our case [15]. Pathological examination of the lesion shows aseptic fibrous response, presence of cotton fibres, granuloma formation and histopathologically confirms the diagnosis of gossypiboma [12]. In a patient with history of cardiac surgery and complaint of chest pain, dyspnoea or fever, gossypiboma should be considered as differential diagnosis [9]. Intra-operative safety measures like prevention of hypothermia, maintenance of haematocrit as well as blood supply to heart and



**Fig. 5.** Microphotograph showing the presence of fibro-collagenous tissue with infiltration of lymphohistiocytic infiltrate throughout the section with presence of occasional centrally placed giant cell. Giant cell showing eccentrically placed smudged nuclei.

brain, proper communication and keeping the gauze piece counted and peri-operative RBC transfusion can prevent further complication of cardiac surgery.

#### 4. Conclusion

Intrapericardiac site is a rare site among the intrathoracic gossypiboma. Pre-operative diagnosis in a late presented case is not confirmed even with the CT scan. Re-exploration is the best approach in a patient with history of thoracotomy with persistent chest pain, dyspnoea, thoracic mass or fever in a view to confirm the diagnosis of gossypiboma. All preventive measure such as usage of surgical sponges with radiopaque markers and its proper counting are important strategies in cardiovascular surgery.

#### Conflict of interests

The authors have no conflicts of interests to disclose.

#### Funding source

No Source to be stated.

#### Ethical approval

Ethical approval has been exempted by our institution.

#### Consent

Informed consent for the publication of this work has been taken by the patient.

#### Authors contribution

Anil Kumar: Wrote the Manuscript.  
Shiv Shankar Paswan: Assisted in Operation.  
Rajinder Prashad: Operated the case.  
Rekha Kumari: Follow up and Post-operative Pain management.  
Bindey Kumar: Review the manuscript.

#### Registration of research studies

Not Applicable.

#### Guarantor

Dr Anil Kumar.

#### Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.ijscr.2018.04.024>.

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