

# Diagnosing Gossypiboma of Abdomen

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## ABSTRACT

### Objective:

1. To analyze the imaging findings of Gossypiboma (Retained intra abdominal post operative sponge)
2. To propose the surgeons with a solution.

**Patients and Methods:** Five proven patients, from June 2001 till June 2006 with intra abdominal sponge after various operation were retrospectively evaluated for the findings on plain x ray, ultrasound and CT scans. **Results:** Findings found on various modalities are as under Simple X-ray findings were normal in one patient (20%), showed haze in one patient (20%) and specks of contained air in three patients (60%). Ultrasound findings were of a mass with echogenic area having acoustic shadowing, three

patients had surrounding thickened walls and two had surrounding free fluid. T showed air filled mass in four patients with unusual pattern of air in 1 patient and all five of them had surrounding fat stranding surrounding the air filled mass.

**Conclusion:** Among imaging modalities CT is the best modality if there is suspicion of retained sponge/gauze. It is highly recommended that during surgical procedure such things should be slightly soaked with aseptic iodinated contrast so that imaging features are readily accepted by all, including the surgeons or newer version of gauze piece with small internal metallic strip should be used **Key Words:** Retained intra abdominal foreign body, Gauze, CT, Ultrasound

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## INTRODUCTION

Every surgical procedure carries some sort of complications. From simple haemorrhage, infection to variable amount of collection, the retained intra abdominal foreign body is probably the least common of the complications.

Gossypiboma, retained surgical sponge (Gossypium Latin: cotton; Boma Kiswahili: place of concealment) is a mass composed of a cotton matrix and concealed within the body. Although uncommon it is an underestimated and under-reported condition<sup>1</sup> despite an estimated incidence of 1/1500 cases<sup>2</sup>

Apart from being a simple complication, the retained FB carries with certain amount of negligence on the part of surgical team involved in the operation. Obviously this complication should not happen and can be avoided if the surgical team carries its work vigilantly.

Diagnosing a retained intra abdominal foreign body like a sponge or a gauze is difficult as in our set up

these things are not soaked with iodinated contrast, so on plain films nothing appears, ultrasound is always doubtful and CT findings only carry with them a certain logical differential.

During last five years, we have encountered following five cases, which were ultimately proven to have a retained intra abdominal foreign body, gauze piece or a sponge. We did not come across any metallic retained object, which obviously is easy to diagnose on the plain films. We have prepared this article in line of the findings of those cases and suggest what should be done to avoid these kind of mal diagnosis

## PATIENTS AND STUDY

Five surgically proven patients of having the retained intra abdominal foreign bodies were retrospectively evaluated. Study ranged from June 2001 to June 2006. All the imaging was conducted in the Department of Radiology Mayo Hospital, Lahore. Every patient had a supine and erect abdominal x ray, an ultrasound abdomen and pelvis

and a CT of abdomen with oral and IV contrast done. 3 were male and 2 were females. Age range from 25-55 years of age.

All five of them had laprotomy and retained sponge/ Gauze were taken out.

## RESULTS

Clinical symptoms of the patients are summarized in Table 1.

**Table 1:**  
**Clinical Symptoms**

Procedure Done	Symptoms and Presentation
C section ( Two Patients 2 )	Lower abdominal pain, Constipation
Cholecystectomy ( One patient )	Non remitting fever
Laprotomy for Liver Hydatid ( One patient)	Abdominal distension and Constipation
Renal Transplant ( One patient)	Pain , Fever

Findings on various imaging modalities are outlined in Table 2

**Table 2:**  
**Findings on Various Imaging Modalities**

Simple X-ray	
• Normal	1
• Specks of contained air	3
• Haze	1
Ultrasound	
• Mass	5
• Echogenic area with acoustic shadowing	5
• Echogenic area with thickened wall	3
• Free surrounding fluid	2
CT	
• Air filled mass	4
• Unusual air patterned area undistinguished from gut	1
• Fat stranding around the mass	5
• Iodinated contrast soaked area	NONE

## DISCUSSION

It's a hard nut to crack. A difficult thing to swallow. A courageous diagnosis to comment on. Only

because of the fact that it comes in negligence and carries with it a certain amount of morbidity and mortality which can be and should have been avoided . Another fact is that it can become a legal issue and in this world of media popularity , can be a source of embarrassment.

Gossypiboma<sup>1</sup> can occur as a complication of almost any surgical procedure such as gynecologic procedures, abdominal surgery<sup>2</sup>, cardiothoracic surgery<sup>4</sup>, internal fixation of fracture<sup>5</sup> and even after neurosurgical procedures<sup>6</sup>

In our study , the retained gauze or sponge was discussed as a strong possible diagnosis on imaging in all cases , but none of them went popular with the surgeons, who kept denying the diagnosis and only considered it in the end of the list of differential. When we came across these cases, all of them were thoroughly discussed with the surgeons.

The idea of writing this article arose because of these very reasons that why the surgeons kept denying a very logical differential till the end and what imaging can do to convince the surgeons. Obviously its not a very common complication but when ever it arises it should be dealt with very carefully and urgently due to the reason that it involves a possible life threat to the innocent patient.<sup>7</sup>

The clinical presentation of these patients vary , some present early with abdominal pain, other symptoms include fever, abdominal distension, constipation<sup>7</sup>. In our series all five patients had different presentation respectively lower abdominal pain after caesarian section, Progressive Constipation after C section, Non remitting fever 4 months after cholecystectomy, abdominal distension and constipation after abdominal laprotomy for hydatid cysts in liver and the last patient presented with post renal transplant pain and fever.

We did both Supine and Erect Xrays in all the five patients. One patient had a normal x ray series and one showed a haze in left lower quadrant. The plain x ray films in all other three patients revealed similar findings , an area of air specks, which could not be confidently differentiated from fecal matter in good quality films Ultrasound is the most frequent modality used for investigated the post operative symptoms and is very sensitive in evaluation of post operative collections. For retained gauze or sponge the ultrasound shows an air filled area which can be an impacted fecal matter . In our series ultrasound

remained inconclusive , however showed an air filled mass like area with dirty acoustic shadowing underneath which warranted further imaging evaluation.<sup>8</sup>

CT scan was done with oral and IV contrast, 100 ml of IV contrast given with 3 ml/sec and 50 seconds delay. All patients showed fat stranding surrounding the suspected area with four having an air filled mass and one having unusual air pattern distribution. CT was the best imaging modality , and fat stranding lead to the area of the problem.

But still the surgeons never agreed to put gauze on the top of the list of differentials. So it is highly recommended to use such sponges or gauze pieces which are easily seen on imaging . One thing which can be done is to soak the gauzes/ sponges in sterilized iodinated contrast as is being done in most of the countries so that diagnosis is easier to made and easier to communicate.

All of the findings mentioned above are reported in international studies and the western countries are now frequently using gauze / sponges with a thin metallic strip to have an easier and earlier diagnosis .<sup>7,8</sup>

## CONCLUSION

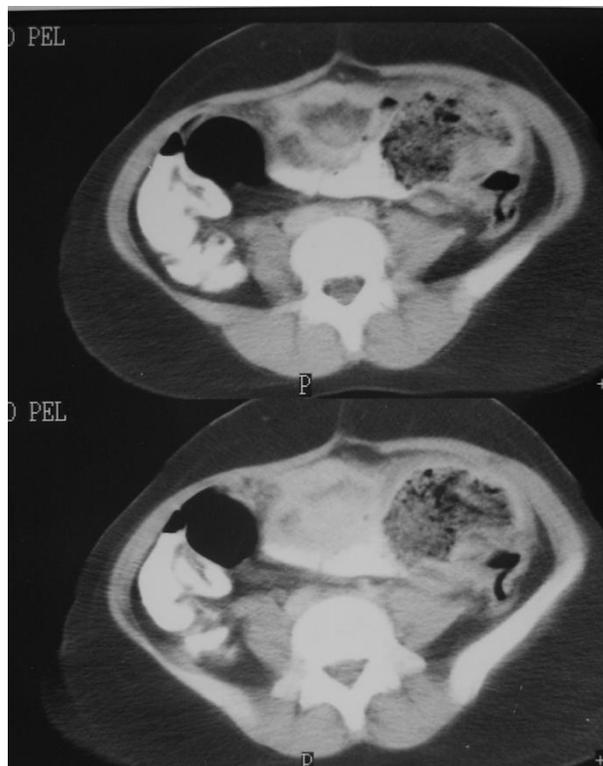
Among imaging modalities CT is the best modality if suspicion of retained sponge/gauze. It is highly recommended that during surgical procedure such things should be slightly soaked with aseptic iodinated contrast so that imaging features are readily accepted by all, including the surgeons



**Figure 1: Specks Of Air Over The Sacrum , A Proven Gossypiboma .**



**Figure 2: Same patient. Air Filled Mass in the Pelvis, a Retained Post Operative Sponge.**



**Figure 3: Another Patient With A Retained Foreign Body, A Sponge**

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