

AN INTRIGUING INSTANCE OF GOSSYPIBOMA THAT IS EMINENTLY RESEMBLING A HYDATID CYST ON IMAGING- HISTORICAL PROBLEMS COMES IN DIFFERENT COVER

Radio-Diagnosis

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ABSTRACT

Gossypiboma or retained surgical sponge is a historical problem which can be preventable but complete elimination is not possible till date even making multiple protocol and new inventions. This entity has associations with morbidity and possible mortality, as well as Medicolegal implications. Wide spectrum of nonspecific Clinical and imaging presentation of gossypiboma made it diagnostic conundrum for early diagnosis with accuracy. Diagnostic features are mimicking for abscess, hydatid cyst and other mass lesions. We are reporting a case of gossypiboma which resembles the hydatid cyst on Magnetic resonance imaging (MRI) and discussing the key points on Computed tomography (CT) scan to establish the diagnosis with confidence.

KEYWORDS

INTRODUCTION:

Retained surgical items are one of the historical problems noted since 1884, still cases are reported despite of taking all efforts to prevent them. (1) Sponge gauge is most frequent type of retained object commonly known as gossypiboma. The name "gossypiboma" combines the Latin word "gossypium," which means cotton, with the Swahili word "boma," which denotes a place of hiding. (2) One more theory regarding name gossypiboma is due to worry of retained sponge spreading gossip about surgeons. Other names of gossypiboma are textiloma, gauzoma, or muslinoma. (3) Due to underlying medicolegal implications, reported rate is less compared to real incidence, in literature reported incidence varies from 0.01-0.001. (4) Despite the fact that it is a rare reporting entity, it is clinically relevant and requires early correct identification to avert consequences. Due to asymptomatic state for years or nonspecific symptoms clinical diagnosis is difficult. Even definitive radiological diagnosis is difficult to establish in view of gossypiboma mimicking the abdominal pathology like abscess, tumours etc. (5, 6) We are reporting a case of gossypiboma that is being referred at our hospital as a hydatid cyst for surgery. MRI revealed features of hydatid cyst characteristics, however CT especially, the topogram allowed us to establish the diagnosis of gossypiboma with confidence preoperatively.

Case Report:

A 31 year old female referred to our hospital for surgery of hydatid cyst. Referring hospital established the diagnosis of hydatid cyst on the basis of MRI. Patient gives history of abdominal pain last 6 months and gradual increase in the abdominal distension by palpable swelling noted in the right upper and mid abdomen. No history of fever, vomiting, bleeding or change in the bowel and urinary habits. On clinical examination smooth mass lesion was palpable without any tenderness. Blood tests including indirect hemagglutination test were in normal range. In view of negative indirect hemagglutination test patient was referred to radiodiagnosis department to confirm the diagnosis of the Hydatid cyst.

Outside MRI images were reviewed and features are favouring the diagnosis of hydatid cyst. MRI shows a thick wall cystic lesion of size 10x7x11 cm in the upper and mid right side of abdomen. Lesion is showing hypointense signal on T1W images and mixed intensities predominantly hyperintense signal on the T2W images. Multiple variable size small T2W hyperintensities are noted predominately in the periphery of the lesion appearing as daughter cysts. Linear

hypointensities are noted within the lesion on T2W images giving the possibility of hydatid membranes. Lesion is well encapsulated and is not invading the adjacent structures. (Fig 1 and Fig 2).

Decision was made to do USG to confirm the findings, USG study was inconclusive in view of significant artifacts (Fig 3). Plain CT was performed to check the other sign of hydatid like calcification to support the diagnosis. CT images show thick wall cystic lesion with multiple curvilinear hyperdensities within the lesion suggesting hydatid membranes. A linear hyperdensity is noted in the central part of the lesion and extending from most cranial aspect to most caudal aspect of the lesion (Fig 4 and Fig 5). On CT topogram this linear hyperdensity is highly suggestive of radiodense marking within the gauge piece (Fig 6). Mild fat stranding is also seen around the lesion. Detail history revealed that patient underwent surgery for hemorrhagic cyst 6 months back. In view of CT findings and previous history of surgery we made the diagnosis of Gossypiboma. Intraoperative findings show adherent omentum to anterior abdominal wall and right iliac fossa, completely obscuring the intestines in that area. Adhesiolysis was performed and necrotic mass with pus pockets present in right lower abdomen with cranial end reaching up to lower margin of liver and caudal end reaching up to right adnexae. Posteriorly mass resting on posterior parietal peritoneum with densely adherent gut loops all around the mass lesion. Whitish sponge with tail studded within the mass is noted (Fig 7). Mass with whitish sponge separated from adhesions with gut and removed successfully without any complication (Fig 8). Patient was discharged after two days in completely stable and comfortable state.

DISCUSSION:

Gossypiboma, which is made up of non-absorbable textile items, is a surgical substance that is left behind after surgery in the body. Gossypiboma is a serious but preventable complication associated with the surgical procedure. Because of the diagnostic conundrum with medico-legal ramifications reporting rate is less than actual incidence. 50% of malpractice claims involving retained foreign bodies are related to gossypiboma. (7) It is usually noticed in the initial few days to weeks after surgery but it might go undiscovered for many years, longest period reported in literature is 43 years. An increased risk of a retained foreign body was correlated to emergency cases, unexpected changes in surgical procedure, and patients with high BMI. (8) There are fibrous and exudative types of responses to foreign body reaction associated with formation of the gossypibomas. Exudative type

gossypiboma presents as abscess or fistula formation while fibrous type gossypiboma remain silent and diagnosed accidentally.(7) Exudative form is more serious and leads to peritonitis, sepsis or even mortality in some cases. In our case exudative type of reaction noted causing mild abdomen pain with gradual increase in the size. Radiographs are the most widely used form of examination and are generally helpful, but they are not the gold standard since sometimes radioopaque thread can be mistaken for sutures, valves, or wire, and sometimes markers can be folded and twisted into strange shapes that are challenging to identify. A prominent posterior shadow and a hyper-reflective mass with a hypoechoic rim can be detected on USG.(9) On CT scan gossypiboma seen as mass lesion with enhancing periphery and dense central part and trapped air between the surgical sponge. Sometime on CT also difficult to distinguish with the abscess, collection or mass lesion. In chronic cases slow deposition of calcification along the fibre network of the surgical gauze is seen and appear as the calcified reticulate rind sign .On MRI retained sponge is typically seen as a soft tissue-density mass with a thick well-defined capsule appearing hypointense on T1W images and hyperintense with whorled internal configuration on T2-weighted imaging. (10) Location of the dense calcifications plays important role in differentiation, in hydatid cyst calcifications or radiodensities are noted in the periphery unlike central position in the gossypiboma as noted in our case also.(11) Serpiginous lines created by the detached endocyst or membranes in hydatid cyst that were also mimicking in the our case making difficult to distinguish on CT and MRI likely due to wavy pattern of the gauge.(12). In our case USG and MRI was not helpful in the diagnosis and CT was useful to make the diagnosis with central location of the radiodensity in the lesion unlike peripheral in hydatid and typical whirl like pattern of the radiomarker of gauge on CT topogram. In our instance as well, CT is the most popular and efficient approach for detecting gossypiboma. Despite taking all the necessary steps and following the guideline complete elimination of this entity is not possible. A small but very efficient step to lower the incidence is during surgery to carefully count the sponges. In the event of discrepancy or even correct gauge counting, a follow-up X-ray will be beneficial to diagnose the problem on the operating table. It is crucial that not only surgeons and radiologists but radiographers, nurses, and OT technicians also aware of this important historical entity.

CONCLUSION:

In view of developing new techniques for complex surgery and taking all the necessary steps to prevent retained sponge appear elusive. To make the early, accurate diagnosis and prevent complications and medicolegal ramifications, it is essential to be aware of this condition and familiar with various imaging appearances. In the setting of equivocal imaging findings for hydatid cyst and negative indirect hemagglutination test with history of previous surgery possibility of Gossypiboma to be consider in differential diagnosis. The best strategy for dealing with this entity is prevention, early diagnosis and removal if necessary.

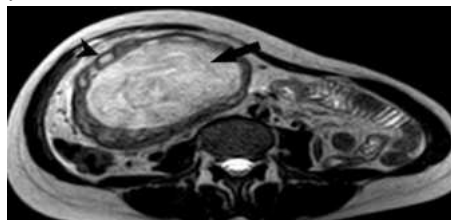


Fig 1: MRI Axial T2W image shows thick wall well encapsulated lesion with small hyperintense lesions in the periphery mimicking daughter cysts (arrowhead) and fine hypointensities within mimicking hydatid membranes representing the wavy pattern of the gauge (arrow)

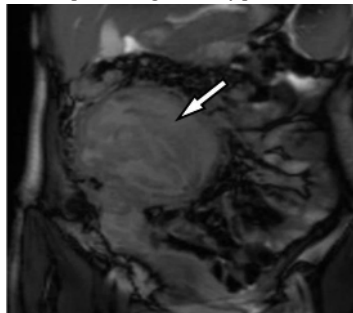


Fig 2: MRI coronal T2W image shows well defined lesions fine hyperintensities and hypointensities within mimicking hydatid membranes representing the wavy pattern of the gauge (arrow)



Fig 3: USG image was inconclusive in view of significant artifacts (arrow)



Fig 4: CT Noncontrast axial image show linear dense hyperdensity suggestive of radiopaque marker (arrowhead) and multiple hyperdensities within mimicking hydatid membrane but representing the wavy pattern of the gauge (arrow)



Fig 5: CT noncontrast coronal image show linear dense hyperdensity suggestive of radiopaque marker (arrowhead) and multiple hyperdensities within mimicking hydatid membrane but representing the wavy pattern of the gauge (arrow)



Fig 6: CT topogram shows linear dense hyperdensity highly suggestive of radiopaque marker in the Gauge (arrow)

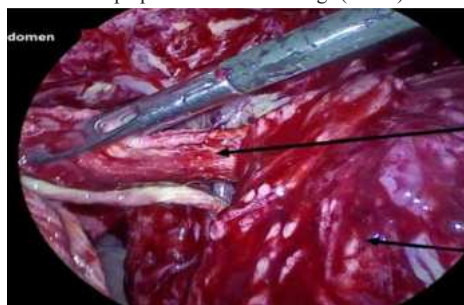


Fig 7: Laparoscopic image showing gauge (long arrow) and gossypiboma (short arrow)



Fig 8: Image showing successful removal of gauge (arrowhead) and gossypiboma in kidney tray (arrow)

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