

GOSSYPIBOMA AND ITS IMPLICATIONS - Case series

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Grant support: None

Conflict of Interest: None

ABSTRACT

Surgical materials are sometimes inadvertently left in the body after surgical operations. Cotton materials are the commonest objects forgotten. The implications for the patient and the surgeon are grave. The purpose of this presentation is to rekindle awareness of the phenomenon of gossypiboma, highlight the implications and stress prevention. Data were collected from hospital records which included their demographics, clinical features, management outcome and follow-up. Four cases of gossypiboma were found. Two had undergone caesarian section, one underwent pelvic floor repair for utero-vaginal prolapsed, and the fourth underwent transvesical prostatectomy. Their age, sex, causative operation and onset of symptoms, and salvage procedures were noted. Out of the 12304 surgical cases managed in our facility between November 1997 and December 2012, 4 (0.03%) cases of gossypiboma were recorded. Gauze extruded spontaneously from the abdominal scar in one patient who had undergone caesarian section. Intestinal obstruction occurred in another case of caesarian section and was relieved by intestinal resection and anastomosis. Also gauze extruded and was extracted from the urethra in the patient who underwent transvesical prostatectomy. Three (75%) patients survived while one (25%) died. We conclude that gossypiboma occurs most commonly after intra-abdominal operations. Women are at increased risk during obstetric and gynaecological operations, though both sexes are affected. The condition carries potentials for harm to the patient and medico-legal litigations.

Key words: Precipitating surgery, Forgotten cotton material, Complications, Medico-legal issues.

INTRODUCTION

Gossypiboma is a term used to denote a mass of cotton material, usually, gauze, sponges and towels, inadvertently left in the body cavity at the end of a surgical operation^{1,2}. The word, gossypiboma, derives from two sources: the Latin word “gossypium” meaning textile or cotton, and the Swahili word “boma” meaning place of concealment³. Other terms used include textiloma and gauzoma^{1,4}. Gossypiboma was first described by Wilson in 188^{1,5}.

Other surgical materials may similarly be forgotten in the body, such as artery forceps, pieces of broken instruments or irrigation sets, scissors, needles and rubber materials^{4,6,7} but textile materials are the most commonly forgotten^{4,8}. Gossypiboma can occur after virtually any type of operation: it has been reported after intrathoracic⁹, orthopaedic, intraspinal and neurological operations¹⁰ as well as breast surgery¹¹, but the most common is after intra-abdominal or pelvic surgery¹. Kaiser found 55% retained sponges after abdominal surgery and 16% after vaginal delivery¹².

The condition is uncommon but its prevalence is difficult to be accurately documented due to under-reporting of the cases¹³. It has been reported to occur in 100 to 5000 of all surgical operations, and 1 in 1000-1500 for intra-abdominal operations^{1,12}. The high degree of under-reporting has been attributed to the fear of litigation. It accounts for 50% of malpractice claims for retained foreign bodies after surgical operations^{1,4}.

Conditions in which gossypiboma may occur include emergency surgery, change in plan of an operation on the table, high body index, inadequate attention to sponge count, profuse bleeding in which gauze swabs are employed to achieve haemostasis¹⁴.

The manifestations of gossypiboma may be non-specific and may take weeks, months or even years from the time of the provoking surgery^{8,15}. Therefore diagnosis may be delayed and may be attended by serious morbidity and even mortality^{13,16}. A patient who has had a previous abdominal surgery who presents later with abdominal pains, nausea, vomiting, features of intestinal obstruction or malabsorption syndrome should be suspected to have abdominal gossypiboma³.

X-rays and ultrasonography are useful in diagnosis if the gauze carries radio-opaque markers but computerized tomography, where available provides surer diagnosis.

Even though gossypiboma is preventable it is unlikely to be completely eliminated¹⁷.

Case Reports

Case 1

A 30-year old woman presented four weeks after a caesarian section done elsewhere, with abdominal pains and tenderness, fever, loss of appetite, scanty bowel movements and mild distension. She was ill-looking, emaciated and febrile. There was a lower midline abdominal scar and she had a moderately distended abdomen with scanty bowel sounds. No mass was palpable. The records were otherwise sketchy. No radiographs were taken. She was judged to have mild peritonitis with ileus. As he was being managed conservatively, gauze extruded from the scar and after its removal the patient remained without symptoms.

Case 2

This was a 35-year old woman who presented in our service as an emergency, complaining of abdominal pains, vomiting and constipation of four days duration. She had had caesarian section one year previously in another hospital. On examination she was ill, pale, dehydrated with loss of weight. The abdomen showed a sub-umbilical scar, and visible peristalsis with exaggerated bowel sounds. Rectal examination showed few pellets of inspissated faeces. A diagnosis of intestinal obstruction secondary to adhesions was made. She was put on intravenous fluids and antibiotics and worked up for surgery. At laparotomy the next day there were omental adhesions to the uterus and to the anterior abdominal wall. Similarly, the uterus was adherent to the anterior abdominal wall and the pelvic side wall. There was a closed loop obstruction of the ileum with obturation of the bowel by a soft mass. There was no fistula orifice detectable. Bowel resection and anastomosis was carried out and the patient recovered fully.

Case 3

This was a 65-year old multiparous woman who presented with third degree utero-vaginal prolapse of three years duration. She was in good general condition and had pelvic floor repair. At the end of the procedure the vagina was packed with some pieces of gauze. Apparently no gauze count was performed either at the beginning or the end of the procedure. She came back after two weeks complaining of watery vaginal discharge and was treated for wound infection. Two weeks later she came back with profuse offensive discharge. A vaginal examination at this stage revealed a mass which when extracted turned out to be a wad of gauze soaked in pus. She made a quick recovery.

Case 4

This was a 76 year-old man who underwent transvesical prostatectomy for benign prostatic hypertrophy. There was much bleeding during the procedure during which gauze pads and free gauze swabs were used. At the end of the procedure gauze count was recorded to be complete. The ensuing post-operative period was marked by repeated periods of bladder catheter drainage necessitated by urinary obstruction after catheter had been removed, painful micturition, anaemia, fever and sepsis. A piece of gauze eventually extruded from the external urethra and was extracted. He eventually died of sepsis.

DISCUSSION

Gossypiboma is an uncommon condition^{1,12}. The 0.03 % of 12304 patients incidence in our series corroborates this fact. This rarity may be actual, but may also reflect under-reporting due to fear of legal action^{4,13}.

Gossypiboma is the most commonly retained foreign material in the body after surgical operations^{8,18}. The most common operations that lead to gossypiboma are the intra-abdominal operations¹⁹, but occurs also after cardiovascular²⁰, intra-thoracic⁹, neurological operations²¹, vaginal, breast surgeries¹ as well as shoulder²² and the limb operations²³. Out of the four cases in this study, three were intra-abdominal and one was intra-vaginal.

Many conditions favour the occurrence of gossypiboma²⁴. The technical competence, skills and awareness of the surgeon and the theatre nursing staff are important. Emergency surgery particularly lends itself to gossypiboma. When there is profuse haemorrhage during an emergency surgery, there is a tendency to use many sponges and pads. This increases the likelihood of some being forgotten if the surgeon and the scrub nurses are not vigilant. The following risk factors have been recorded as most significant favouring the occurrence of gossypiboma: emergency operations, team fatigue, unplanned change in the operation and patients with high body mass index^{4,24}.

Gossypiboma has the potential to harm the patient with its attendant morbidity and even mortality¹. This is hinged on its pathophysiology. A retained piece of cotton material evokes two different types of reaction. There is an exudative reaction which leads to the formation of abscesses, and there is also a fibrotic reaction which leads to adhesions and mass lesions³.

Intramural migration of a sponge may occur without any opening to show its point of entry during re-exploration^{3,25}. Inside the bowel lumen peristalsis pushes it on. If it can negotiate the ileo-caecal valve it will be passed out during defaecation; if not it may cause intestinal obstruction, malabsorption or haemorrhage²⁶.

Fistulisation may occur between the mass and the bowel lumen or other organs such as the urinary bladder, and such transmigration may leave a persisting fistula²⁷. A case of gastro-cutaneous fistula has been reported by Kohli et al after open cholecystectomy²⁸. The phenomenon of transmigration and fistulisation is caused by inflammation and pressure on the bowel, resulting in necrosis of the bowel wall at that point and subsequent sealing off of the defect¹⁵.

A history of previous surgery is mandatory for the diagnosis of gossypiboma at whatever site²⁹. Colicky abdominal pain, nausea, vomiting, features of malabsorption or abdominal mass in a patient who had undergone an intra-abdominal operation lead to the suspicion of gossypiboma. However the symptoms may be non-specific and mild and may be overlooked for months or even for years¹⁶. Garry and Aggarawal have stated that the interval between the originating surgery and manifestations of the

disease may range from eleven days to twenty-eight years¹³. It may mimic other conditions such as a pseudotumour³⁰, gastrointestinal stromal tumour⁴. Diagnosis will be enhanced by plain X-rays only if the gauze or towel has radio-opaque marker but the main stay of imaging diagnosis is computerized tomography which may show a brightly echogenic, well defined structure in a cystic mass³¹. Air bubbles and calcifications may be seen, leading to confusion with an abscess^{31,32}. Ultrasonography, magnetic resonance imaging and upper gastrointestinal contrast radiographs have been valuable.

Gossypiboma is a preventable condition. Prevention hinges on ensuring that a correct sponge count is made at the beginning and before the abdomen is closed. Sponge count is traditionally carried out manually. It is recommended that the count be made twice: at the beginning and also before closing the wound; the count should be done by at least two people¹⁸. Swabs should only be used intra-abdominally if they are "mounted on a stick"¹⁷ and only those with radiopaque markers should be used¹⁸. When in doubt intra-operative x-rays may be used to count the gauze if impregnated with radio-opaque material¹⁸. Newer technologies for gauze tracing include electronic article surveillance system which uses tagged surgical sponge that can be detected electronically³³, bar codes applied to all sponges and detectable with bar code scanners¹⁴. However, these new technologies are not yet in general use. So far, despite all efforts to prevent gossypiboma, cotton materials are still left behind even when sponge counts have been declared "correct" because it is a subjective process³⁴.

The best treatment for gossypiboma is surgical exploration. However, surgical intervention may not always be required. Spontaneous migration can occur, leading to expulsion of the foreign material through the anus during defaecation²⁶, through the cervix and vagina, as noticed in one of our patients or even through the urethra as we have reported above in this study. Percutaneous routes for removal of retained foreign bodies may be used where such bodies are readily accessible, but are not applicable to intra-abdominal foreign bodies. Laparoscopic methods have been used to remove left over gauze^{7,35}.

The legal implications of gossypiboma are high³⁶ as the condition is associated with morbidity and mortality. Again, gossypiboma may be misdiagnosed as a malignant tumour leading to unnecessary invasive investigations and extirpative surgery which may be disabling²⁷. Laparotomy in the midst of adhesions, abscesses, intestinal fistulae and intestinal obstruction can lead to morbidities and even death¹³. Claims for gossypiboma are therefore liable to succeed, with a dent on the image of the doctor, the medical profession and the hospital where the original surgery was performed³⁶.

CONCLUSION

Gossypiboma is preventable and occurs most commonly after intra-abdominal surgery but can occur after many other types of surgery. Though both sexes are affected, women are at increased risk especially during obstetric and gynaecological operations. It is associated with high morbidity and mortality as well as provide a good ground for medico-legal litigations.

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ACKNOWLEDGEMENT

I hereby acknowledge the assistance of Mrs Akubueze Nwugo, the records officer , who painstakingly retrived patients charts .