

Simultaneous Extraction of a Retained Surgical Gauze from Bladder and Uterus 17 Years after Cesarean Section: A Rare Case Report

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Abstract

Introduction: Gossypiboma is defined as retained foreign object (sponge, needle, and instrument) in patient's corpus after operation that is recognized as a medical error. It may induce catastrophic implications for the patient and medical care providers. We present a case with a 17-year-old gossypiboma after cesarean section.

Case Presentation: A 49-year-old woman was admitted to the outpatient clinic of Rasool-e-Akram hospital of Tehran, Iran, in 2016 presenting with abnormal uterine bleeding (AUB), abdominal pain, and urinary symptoms for many years. She underwent hysteroscopy. Operative findings included intrauterine synechiae and a polypoid lesion. Besides, a thread-like foreign body was observed in the anterior surface of the uterine cavity, which was suspected as a cesarean section suture material that was extracted. After hysteroscopy, uterine bleeding stopped although abdominal pain and urinary symptoms maintained. Voiding cystourethrogram (VCUG) and MRI revealed a mass between uterus and bladder. Then, laparotomy was performed. After opening the abdominal wall under general anesthesia, we explored internal organs and encountered a necrotic mass revealing an old organized gauze between bladder and uterus, which infiltrated the uterus and trigon. It was extracted and then, hysterectomy and bladder repair were carried out.

Conclusions: Surgical sponges are the most common foreign materials retained in abdominal cavity.

Keywords: Surgical Sponges, Cesarean Section, Foreign Bodies, Case Presentation

1. Introduction

Gossypiboma is a term describing an important post-operative complication. It includes retained cotton surgical gauzes and other surgical instruments. As a matter of the fact, gossypiboma refers to an error, which may happen intraoperatively and diagnosed postoperatively. Gossypiboma may manifest with different gastrointestinal and general presentations depending on the site of the retained sponge in the abdomen.

Some of the risk factors that significantly increase the prevalence of retained surgical sponge or instruments are emergency and complicated surgeries, unplanned changing of procedure, high body mass index, and changing the operation team. Except medical morbidity, retained surgical sponge or instrument may have many medico legal consequences for surgeon and the surgical team (1-7).

Despite many standard policies for surgical sponge and instrument counting, retained surgical foreign body still maintains a substantial patient's safety challenge.

In this work, we present a case with asymptomatic re-

tained surgical sponge 17 years after a cesarean section.

The purpose of this study was to elucidate the extent of the problem of gossypiboma and identify preventive protocol.

2. Case Presentation

A 49-year-old gravida 4 para 4 woman was admitted to the outpatient clinic of Rasool-e-Akram hospital, a governmental center in Tehran, Iran, in 2016 presenting with menometrorrhagia for 2 years, chronic lower abdominal pain, and urinary symptoms for many years. She had a history of 4 times cesarean section, with the last cesarean section performed 17 years ago in a governmental hospital in Ilam. At vaginal examination, there was trivial vaginal discharge; uterus was partially fixed with myomatosis consolidation. Ultrasound evaluation showed two fundal subserosal myomas. Endometrial thickness was 3-mm. Hormonal assay, cell blood count, and urine analyses were normal. There was no sign and symptom of inflammatory reaction. Intraoperative findings by hysteroscopy were ad-

hesive bands, intrauterine synechiae, and polypoid lesion. During hysteroscopy, a foreign body was found on the anterior aspect of uterine cavity compatible with the level of lower segment (Figure 1). Polypectomy and removal of foreign body were performed followed by endometrial curettage (8). Pathologic study revealed foreign object as hydrolyzed suture material with mild acute inflammation, granulation tissue, and tiny fragment of exocervical mucosa and endocervical glands. The postoperative care was uneventful and she was discharged on day 4. AUB was stopped although the patient's complain of urinary symptom continued. Voiding cystourethrogram (VCUG) and MRI were performed and a 51.32 mm mass between uterus and bladder was seen with central necrosis, without obvious border between this area and the uterus. Therefore, we performed laparotomy. After opening the abdominal wall under general anesthesia, we explored the pelvic and abdominal organs. In this stage, we encountered a necrotic mass revealing an old organized gauze between bladder and uterus that infiltrated the uterus and trigon. Then, the foreign body was extracted carefully (Figure 2). Aftermath, hysterectomy and bladder repair were carried out. In follow-up visits, the patient got rid of urinary symptoms.



Figure 1. Foreign Body in Hysteroscopy

3. Discussion

The first case that presented as retained sponge, gossypiboma, was described by Wilson in 1884. Most common foreign bodies forgotten (70%) in the abdominal cavity are surgical sponges due to their much more use and small size. In addition, wet sponge in a hemorrhagic abdomen is hard to recognize. The most common site of retained sponge is abdominal cavity (1, 8, 9).

The incidence of retained sponge varies from one in every 1000 - 1500 of intra-abdominal surgeries to one in 100-3000 of all operative procedure (1, 10, 11).

Wan et al. reviewed case reports published between 1963 and 2000. Based on this study, abdominal and pelvic



Figure 2. Retained Surgical Gauze

cavities and vaginal vault (74%) are the most common sites for retained sponge, followed by thoracic cavity (11%).

Retained sponges and instruments may be asymptomatic and detected incidentally or symptomatically. Some authors classified the symptoms as acute and/or chronic forms (4, 12-15).

Exudative reactions and abscess formation or aseptic fibrinous responses are among other presentations (1, 16).

General clinical presentation is unspecified and includes abdominal pain and mass, rectal bleeding, fever, intestinal obstruction, or diarrhea (2).

Early symptom of retained sponge includes unexplained pain, features of generalized sepsis, and abscess formation.

In some cases, retained sponge presents with delayed and chronic symptoms consisting of non-healing wound, discharging sinuses, mass, signs and symptoms of intestinal obstruction, internal fistula, well-encapsulated aseptic foreign body granuloma, transmural migration and spontaneous expulsion to the adjacent organs (1, 12, 13).

Intra-abdominal gossypiboma may be presented by different appearances, depending on the site of the re-

tained gauze in the abdomen. Transmural penetration and migration of the surgical sponge is a rare manifestation. We present this very rare case of abnormal uterine bleeding and chronic urinary symptoms secondary to simultaneous intrauterine and intravesical migration of sponge.

Plain radiography is often the first step in diagnosis of radio-opaque foreign bodies. Barium sulfate marker in radio-opaque gauze makes retained sponge easily identifiable by radiography.

Most frequent feature of retained sponge on CT is the spongiform figure made by gas bubbles. Nevertheless, in chronic types, this pattern may not be found (4, 12).

Relevant to clinical situation, MRI and other barium contrast studies may also be used. On MRI, retained sponge manifests as well-defined masses with fibrous capsules by low signal intensity on T1-weighted imaging. Retained sponges have different magnetic resonance signal intensity depending on the content of liquid and protein of the mass. The low intensity strips of the gauze fiber (on T2-weighted imaging) are the particular MRI finding of retained sponge. We found a few cases in the literature with an interval time more than 10 years. Susmallian et al. reported a surgical sponge forgotten for 9 years (2, 12).

The patient we reported was asymptomatic for 17 years despite retained surgical sponge. After this period, she presented with abnormal uterine bleeding due to gauze penetration to uterus.

Liessi paper reported nine patients with 7 days to 21 years asymptomatic interval time between the operation and gauze removal. Sungjoon Lee et al. reported a 20-years-old retained surgical gauze mimicking a spinal tumor. In order to prevent retained surgical sponge, sponge-counting protocols should be carefully considered in any operating room. In most operating rooms, one or two members of operating team carry the sponge counting. Operating field is dynamic and full of stress occasionally; as a result, human errors would easily happen. Nevertheless, retained sponge is the result of surgical error. Surgical gauzes must be counted before closing patient's wound at the end of the surgery. Radio opaque sponge should be used to distinguish easily retained surgical sponges. Approximately, up to 70-80% of reported cases with retained sponge are with falsely correct sponge count (1, 2, 12).

Therefore, some advanced methods in sponge counting have been introduced for the first time at Stanford University. A prospective blind experimental clinical trial was conducted using sponges tagged with radiofrequency identification microchip and handheld scanning device.

Detection of all sponges was performed correctly with no false positive or negative results by using handheld device. Results of this study were encouraging; however, there are some challenges in human errors in carrying out

an incorrect scan. Nevertheless, cost-benefit analysis of such technology was performed. There is another study comparing traditional counting method with computer-assisted counting of sponges using barcodes in a randomized control trial with 298 patients. Results of this study demonstrated that the barcode system is associated with significantly more counting discrepancies compared to customary system (13, 17, 18).

Therefore, adoption of advanced methods and working by new technologies should be persuaded to facilitate traditional protocols of counting.

3.1. Conclusions

Preventive discretion should be as a rule for avoiding such events with considerable morbidity and medico legal consequences. Besides, adoption of advanced technologies for sponge counting should be considered and more studied.

Ethics approval and informed consent

Informed consent was obtained from the patient and her husband for publication of this article and related images.

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Footnote

Conflict of Interest: None of the authors has a conflict of interest with the present report.

References

- Margonis E, Vasdeki D, Diamantis A, Koukoulis G, Christodoulidis G, Tepetes K. Intestinal Obstruction and Ileocolic Fistula due to Intraluminal Migration of a Gossypiboma. *Case Rep Surg*. 2016;2016:3258782. doi: 10.1155/2016/3258782. [PubMed: 26989551].
- Susmallian S, Raskin B, Barnea R. Surgical sponge forgotten for nine years in the abdomen: A case report. *Int J Surg Case Rep*. 2016;28:296-9. doi: 10.1016/j.ijscr.2016.10.026. [PubMed: 27770737].
- Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ. Risk factors for retained instruments and sponges after surgery. *N Engl J Med*. 2003;348(3):229-35. doi: 10.1056/NEJMsa021721. [PubMed: 12529464].
- Aydogan M, Mirzanli C, Ganiyusufoğlu K, Tezer M, Öztürk I. A 13-year-old textiloma (gossypiboma) after discectomy for lumbar disc herniation: a case report and review of the literature. *Spine J*. 2007;7(5):618-21. doi: 10.1016/j.spinee.2006.08.004. [PubMed: 17905325].
- Kim CK, Park BK, Ha H. Gossypiboma in abdomen and pelvis: MRI findings in four patients. *AJR Am J Roentgenol*. 2007;189(4):814-7. doi: 10.2214/AJR.07.2323. [PubMed: 17885050].
- Kucukyuruk B, Biceroglu H, Abuzayed B, Ulu MO, Kafadar AM. Paraspinal gossypiboma: A case report and review of the literature. *J Neurosci Rural Pract*. 2010;1(2):102-4. doi: 10.4103/0976-3147.71725. [PubMed: 21808514].

7. Arikan S, Kocakusak A. Retained Textile Foreign Bodies: Experience of 27 Years. *Acta Med Port.* 2015;**28**(4):494-500. [PubMed: 26574986].
8. Vahdat M, Rokhgireh S, Mousavi AS, Tahermanmanesh K, Khodaverdi S, Nazari L, et al. Retained Suture Material Post Cesarean Section: A Case Report. *J Minimal Invas Surg Sci.* 2016;**5**(4).
9. Dash BB, Mahey R, Kriplani A, Agarwal N, Bhatla N. Textiloma, a rare pelvic tumor. *Arch Gynecol Obstet.* 2010;**282**(6):707-9. doi: 10.1007/s00404-010-1412-6. [PubMed: 20213129].
10. Lv YX, Yu CC, Tung CF, Wu CC. Intractable duodenal ulcer caused by transmural migration of gossypiboma into the duodenum—a case report and literature review. *BMC Surg.* 2014;**14**:36. doi: 10.1186/1471-2482-14-36. [PubMed: 24917191].
11. Lincourt AE, Harrell A, Cristiano J, Sechrist C, Kercher K, Heniford BT. Retained foreign bodies after surgery. *J Surg Res.* 2007;**138**(2):170-4. doi: 10.1016/j.jss.2006.08.001. [PubMed: 17275034].
12. Lee S, Kim B, Kim JS, Choi BS. A 20-Year-Old Retained Surgical Gauze Mimicking a Spinal Tumor: A Case Report. *Korean J Spine.* 2016;**13**(3):160-3. doi: 10.14245/kjs.2016.13.3.160. [PubMed: 27799998].
13. Steelman VM. Retained surgical sponges, needles and instruments. *Ann R Coll Surg Engl.* 2014;**96**(2):174-5. doi: 10.1308/xxx. [PubMed: 24780693].
14. Wan W, Le T, Riskin L, Macario A. Improving safety in the operating room: a systematic literature review of retained surgical sponges. *Curr Opin Anaesthesiol.* 2009;**22**(2):207-14. doi: 10.1097/ACO.0b013e328324f82d. [PubMed: 19390247].
15. Berkowitz S, Marshall H, Charles A. Retained intra-abdominal surgical instruments: time to use nascent technology? *Am Surg.* 2007;**73**(11):1083-5. [PubMed: 18092638].
16. Sozutek A, Yormaz S, Kupeli H, Saban B. Transgastric migration of gossypiboma remedied with endoscopic removal: a case report. *BMC Res Notes.* 2013;**6**:413. doi: 10.1186/1756-0500-6-413. [PubMed: 24124727].
17. Macario A, Morris D, Morris S. Initial clinical evaluation of a handheld device for detecting retained surgical gauze sponges using radiofrequency identification technology. *Arch Surg.* 2006;**141**(7):659-62. doi: 10.1001/archsurg.141.7.659. [PubMed: 16847236].
18. Greenberg CC, Diaz-Flores R, Lipsitz SR, Regenbogen SE, Mulholland L, Mearn F, et al. Bar-coding surgical sponges to improve safety: a randomized controlled trial. *Ann Surg.* 2008;**247**(4):612-6. doi: 10.1097/SLA.0b013e3181656cd5. [PubMed: 18362623].