Gossypiboma Post Cesarean Section: Patient Safety Review

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ABSTRACT

Background: Operations in the pelvic area including cesarean section are often followed by unwanted events in the form of missing surgical instruments. The surgical device that is most often left behind during operations is surgical gauze and is known as a gossypiboma. Surgical gauze is often left in body cavities such as the peritoneum, pelvis, and retroperitoneal spaces. This surgical gauze can remain in the body for days, months, or even years before manifesting clinically. A granulomatous reaction around the surgical gauze may produce exudate followed by the formation of an abscess or fibrotic mass.

Objective: To see the aspect of patient safety in cases of gossypiboma after cesarean section. Methods: Serial report of gossypiboma cases after cesarean section. Results and Discussion: Three cases of gossypiboma were reported after cesarean section in Bali in 2017-2018. The diagnosis is made clinically according to complaints, and history of cesarean section and supported by supporting examinations such as BOF (Book-on-Filter), Ultra Sonography, and Computerized Tomography-Scan. Various surgical procedures were performed including sub-total colectomy laparotomy, right hemicolectomy laparotomy, and Hartman procedure laparotomy. All operations went well with good results too. Patient safety approaches and procedures must be carried out strictly to prevent a recurrence.

Conclusion: Reports of three cases of gossypiboma after caesarean section are strongly related to patient safety procedures that are not performed in the operating room.

Keywords: cesarean section, gossypiboma, patient safety.

I. INTRODUCTION

Unwanted events can occur after surgery, especially in emergency operations. Caesarean section surgery is often carried out in critical and even emergency conditions so that there is a risk of complications occurring more often from planned operations. The doctor is responsible if damage occurs or if there is a foreign body left in the body after surgery.

The risk of complications that often accompanies emergency surgery can be in the form of unwanted events or near misses. Unwanted events that can occur include leaving surgical devices in the operating field. The surgical device most often left behind during operations is surgical gauze. The remaining surgical gauze is known as gossypiboma. Gossypiboma is an uncommon, underreported, and most common complication after abdominal surgery. Although it has also been reported in operations on the nose.

This risk will occur more frequently if patient safety principles are not implemented properly. Patient safety has become a global demand for health services, especially in hospitals. The Institute of Medicine (IOM) defines patient safety as an effort to prevent harm to patients [1]. Surgical devices including surgical gauze, instruments and other devices left behind during operations are difficult to ascertain. Many cases go unreported, not recorded because they have medicolegal implications.

The exact incidence of left-behind surgical devices like this is unknown, due to underreporting. Its incidence is estimated at around 0.01-0.03% [2]. In the United States cases of left behind surgical devices are reported as many as 750 cases per year. 3 Risk factors that are often found are emergency surgical procedures, unplanned surgical changes, and patients with high body mass index [3].

There is no data regarding incidents of left behind surgical devices in Indonesia, including in Bali. Although rare, these cases can cause serious morbidity, and even mortality [4]-[6]. Leakage of surgical gauze can occur in any operation. But most often occurs in the peritoneal cavity and in the pelvic cavity. Manifestations can also vary depending on the location and type of material.

II. CASE STUDY

It is a report of three cases that came to Prof. Hospital. dr. I.G.N.G Ngeorah Denpasar in 2017-2018. Patients were referred from the district or private hospitals in several
districts in Bali. The case is a referral to a specialist in digestive surgery, then communicated to the Department of Obstetrics and Gynecology Prof. Dr. I.G.N.G Ngoerah Hospital. The two cases of surgery/definitive action were carried out jointly by specialists in digestive surgery with obstetrics and gynecology.

A. Case I

A 34-year-old woman, third pregnancy with a history of cesarean section in two previous pregnancies. The cesarean section operation was carried out in a private hospital in the district. After returning home, the patient complained of flatulence and pain. The patient was admitted to the hospital again for treatment. After improving, the patient was sent home without knowing that there was surgical gauze left behind. The third month after surgery, the patient complained that there was a discharge from the buttocks, elongated when pulled and cut by the patient himself. Finally, the patient was referred to Prof. dr. I.G.N.G. Ngoerah General Hospital in Denpasar for further treatment. The diagnosis was established after being confirmed by BOF examination and abdominal ultrasound.

B. Case 2

A 24-year-old woman with a history of cesarean section 1 year earlier (2017) at the district hospital. Complained of pus coming out of the surgical scar for the previous 2 months had been treated again at the district hospital, and an incision and drainage of the abscess (local) were carried out. However, pus was still seeping out, even 2 days before being referred to Prof. dr. I.G.N.G. Ngoerah General Hospital, Denpasar, a red hole appeared near the navel accompanied by pus oozing like in a surgical wound. Seepage of pus was still there until it arrived at Prof. dr. I.G.N.G. Ngoerah General Hospital, Denpasar. An ultrasound examination of the abdomen and a CT scan was performed to confirm the diagnosis (attached). On ultrasound examination, there was a shadow of debris in the bladder of suspected cystitis. A mixed echogenic lesion was seen, the boundaries were not clear, and the edges were irregular, measuring 10.63 x 10.78 cm in the right lower abdomen to the middle with intra-lesional vascularization. Probably right lower abdominal extraluminal mass, differential diagnosis Peri-appendicular infiltrate. Confirmation of the diagnosis by CT scan examination, found local dilatation of the intestine in the ileocecal region accompanied by thickening of the intestinal wall with enhancement on the intestinal wall and peritoneum suggesting an inflammatory process and enhancing lesions in the cutaneous and sub-cutaneous regions of the anterior abdominal wall (abscess impression) which are still intact (defect) with the bowel wall in the ileocecal region. The bowel wall of the lesion region appears adherent to the bowel wall around the lesion, dilatation of the bowel loops or colon. Minimal free fluid density in the pelvic cavity is suspected to be peritonitis. The results of the examination of the pus culture at the base of the wound found E. Coli ESBL.

C. Case 3

21-year-old woman after cesarean section for first pregnancy five months earlier. The patient complained of abdominal pain in the navel area the day before coming to the hospital. The patient also complained of bowel obstruction for the last 4 months. Small small stools, sometimes diarrhea. The patient had a 10 cm long gauze discharge from the anus yesterday when he had a bowel movement. But not all of them can be pulled out due to illness. The patient was referred to Prof. dr. I.G.N.G. Ngoerah General Hospital for further treatment.

III. DISCUSSION

From the reports of the three cases above, several questions arise, including How to diagnose it? How to treat gossypiboma? How cases can occur, and how to prevent them?

Surgical gauze left behind in the peritoneal cavity can occur during surgical operations in general or special operations including obstetric and gynecological operations. The gossypiboma case in these three cases was the surgical gauze left behind after cesarean section. The first case was a planned cesarean section so it should have been prevented. The compliance of the surgical team in implementing the surgery safety checklist is very important to prevent unwanted postoperative events. The implementation of the surgery safety checklist includes the Sign in, Time Out, and Sign Out phases.

Research showed a relationship between the application of a surgery safety checklist and unwanted events (surgical site infection). Nurses confirmed that the instruments had been calculated correctly and that there were no equipment problems during surgery, which was the duty of the operating room nurse, the most important item. often not complied with, while that is the duty of the operating room nurse. The second and third cases were obstetric cases without an emergency, so there is no reason not to implement compliance with the surgery safety checklist.

The first case was suspected more than 3 months after cesarean section at the district hospital. The patient complains of gauze coming out of the buttocks. The gauze that came out was pulled and cut by the patient himself. After consulting with a doctor, it is recommended to be referred to a referral center hospital in Denpasar. On the third day after the cesarean section, the patient experienced difficulty in defecating accompanied by a bloated stomach. The hospitalization period was extended before finally being sent home with repairs.

The second case occurred one year after the cesarean section operation. Meanwhile, the third case was diagnosed five months after cesarean section. Leftover surgical gauze after surgery can manifest at different times. It can occur immediately after surgery, months, or even years after the surgical procedure.

Diagnosis of gossypiboma is not easy, especially since the patient's complaints are not specific. The lagging of surgical gauze may manifest differently depending on the location and type of material. The remaining locations of surgical devices can be found in the nose, in the tracheobronchial tree, retroperitoneal space, uterus, and spine, but are most commonly found in the abdominal cavity. Leaving surgical devices in the abdominal cavity causes symptoms of pain, abdominal tumors that can raise suspicion for malignant masses, intra-abdominal abscesses, obstructive ileus, intestinal perforations, gastrointestinal fistulas, and bleeding.
can even migrate to the intra-lumen gastro-intestinal. radio imaging though still often wrong. Moreover, the radiographic quality is poor, the sufferer is fat [9]. Unless there are specific complaints, there is discharge from the anus. Like our two cases above. Correctly identifying gauze on a radiograph may be difficult. Generally, the discovery of a foreign body after surgery occurs because of non-specific complaints. Our second case came with a complaint very similar to a surgical wound infection. So, it requires a more complicated diagnostic procedure to determine the right diagnosis. On ultrasound and CT scan examinations it is also not easy to confirm that there is surgical gauze left in the abdominal cavity.

Surgical gauze left in the peritoneal cavity can migrate into the intraluminal due to peristalsis. The impact or implications of gossypibomas can be in the form of adhesions, abscess formation, migration and fistulae, and intestinal obstruction and even increase the mortality rate [9].

Granulomatous reaction around the foreign body may produce an exudate with the formation of an abscess or fibrotic mass. Patients may be asymptomatic but will become symptomatic after a few days to 28 years [5]. For Gossypiboma clinically, it causes pain, distension, vomiting, diarrhea, intestinal obstruction, fistula formation, or pseudo-tumor. Because cotton fiber is biochemically inert, surgical sponges usually do not cause any specific reactions in the body but can cause the formation of adhesions and granulomas around them and become aseptically encapsulated.

Patients may complain of pain and discomfort months or years after their procedure, particularly in cases where surgical gauze remains in the abdominal cavity [7]. When a surgical device is suspected, the diagnosis should be confirmed by computed tomography (CT). In addition, surgical instruments such as clamps, retractors, electrodes, or drains can be left behind after surgery, especially in the abdominal cavity. Instruments made of stainless steel, such as retractors, may cause a minimal reaction but any foreign body has the potential to cause pain, obstruction, ileus, or abscess [6].

The diagnosis of most cases can be confirmed through imaging techniques such as MRI, CT scan, radiography, and ultrasound. 6 Retained surgical devices may manifest as a mass within the abdominal cavity and may be suspected as an abdominal tumor, in which case, extensive diagnostic imaging may differentiate the device. The surgery left them with a tumor mass. Fibrin change is present as a soft tissue mass in approximately 27% or as an aseptic surgical residue left behind which can produce a granulomatous reaction and adhesions. In some cases, retained surgical devices are found in the abscess and manifest with clinical signs of sepsis [6].

In its management, the success of the operation to remove the remaining gauze is very good if it is done immediately after the first procedure, especially in the first two weeks. During this time, foreign bodies can be detected by X-ray or can manifest as an inflammatory reaction. In such cases, a reasonable approach is to first try to remove the left-over surgical device laparoscopically. In cases that manifest chronically, months, or even years after the first procedure, diagnosis becomes much more difficult. Most require supporting examinations such as ultrasound, CT scan, and even MRI.

The retained material appears to be a tumor-like mass or intestinal obstruction, and various types of the fistula may be involved. Often the clinical manifestations are suspected of being a malignant tumor. Therefore, it is necessary to do a CT scan and MRI to make a diagnosis [1], [3].

Missing surgical devices can also manifest as inflammation in the area around the retained surgical sponge and can lead to intestinal obstruction. Cases that produce acute inflammation and obstruction require urgent surgery. Leaving surgical devices can also cause perforation of the intestinal wall, pathological adhesions between adjacent structures, and even fistulas [3]. Upper gastrointestinal bleeding can also occur and can be life-threatening for the patient. Transmural migration left behind surgical instruments after surgery can cause intestinal obstruction and migrate to the intraluminal intestine. Once gossypiboma is diagnosed, the optimal treatment is surgical management. If the retained device is superficial, it can be extracted from a skin wound or a sinus tract can be excised, and no further intervention is needed.

Most patients require exploratory laparotomy under general anesthesia for gauze removal. Retrieval via laparoscopy is also reported to be an alternative, with advances in the field of endoscopy, the incidence of residual gauze can be reduced. Surgical complications occur frequently, and often and must be prevented. The application of a surgical safety checklist is associated with reduced complications, morbidity, and mortality in patients undergoing surgery [10]. However, approximately 88% of cases of missed surgical devices occur in situations where the number of sponges and instruments is stated to be “correct”. Calculating Surgical materials used during surgical procedures must also be carried out properly and correctly. This is the responsibility of the nurses under the direction of the operating doctors. It's a good idea to be heard by other operating room teams when counting. In particular, counts should be made at the following points in time during the procedure. First, before the procedure starts (initial count); second, whenever new auxiliary items are used during operation; third, before the surgeon closes the body cavity; fourth, when the surgeon begins to close the wound; and finally, when the surgeon closes the skin (final count) [1], [7].

In Indonesia, the Indonesian Ministry of Health has issued guidelines for implementing patient safety programs in hospitals. Seven areas are the center/focus of attention. Specifically, “the use of performance improvement methods to evaluate and improve patient safety programs” is carried out on an ongoing basis [10].

IV. CONCLUSION

Three cases of gossypiboma after cesarean section in 2017-2018 has been reported by Prof. dr. I.G.N. G Ngeorah Denpasar Bali. All three were cases of surgical gauze left behind after cesarean section and were performed in non-emergency conditions. The compliance of the surgical team in implementing the surgery safety checklist is very important to prevent unwanted postoperative events. The implementation of the surgery safety checklist must be carried out from the start of the sign-in phase, during the time-
out phase, as well as during the sign-out phase. This is not only done by operating room nurses, but also by operators and other operating room teams.

**CONFLICT OF INTEREST**

Authors declare that they do not have any conflict of interest.

**REFERENCES**


