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CASE STUDY

FOREIGN BODIES AFTER INTRA-ABDOMINAL SURGERIES: PATHOPHYSIOLOGY AND MEDICOLEGAL IMPLICATIONS

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ABSTRACT

There is no large series about retained foreign bodies in abdominal cavity. In fact, data are underestimated because of the lack of reports considering its serious medicolegal implications. An inflammatory fibrotic process inside the peritoneal cavity, a virtual discharge of inorganic material through the surgical incision and also a slow process of transmural migration into the intestinal lumen are the most frequent pathophysiologic situations. It is not uncommon the incidental diagnosis of foreign body and radiographic studies may be particularly helpful to elucidate the etiology. An early recognition minimizes the surgical risks and contributes to avoid severe complications. The best approach is to adopt preventive measures. Careful perioperative materials vigilance and instrumentation and also a meticulous check at the end of operations are essential to avoid such legal responsibility.

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INTRODUCTION

The description of foreign bodies retained the abdominal cavity after a surgical procedure is scarce in the medical literature. The underreporting of cases is directly correlated to the nature of this misfortune, because their realization exposes the surgical team and can also bring troubles under the auspices of a legal demand, that would qualify as medical malpractice. On average, every 500 to 1500 intra-abdominal operations occurs a case, i.e. an incidence around 0.15% to 0.2% (Gawande *et al*., 2003; Kaplan *et al*., 2012). This is an event that even leaves out experienced surgeons and causes great apprehension for all involved, surgical team, patient and family, while live on the suspicion of such adversity (Gümüş *et al*., 2012).

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Etiology and Pathophysiology

Preliminarily, some considerations of pathophysiological aspects of foreign bodies into the abdominal cavity are necessary to facilitate the understanding of this problem.The natural history of intracavitary foreign bodies reveals three evolutionary possibilities: become encapsulated by the inflammatory and fibrotic reaction process, be eliminated by surgical incision, out of necessity; or migrate to the intestinal lumen (Feldman, 2011). Not included in this study the foreign bodies inserted or retained in the lumen of the digestive system, are fleeing to the scope of the theme, do not configure a iatrogenesis (greek iatros = doctor and genia = generated by) and not be from surgical access to the abdominal cavity (Couper, 2003). Multivariate analysisshow that some factors increase significantly the risk of retained foreign body such as the emergency surgery, unexpected changes and unplanned surgical conduct and obese patients (Gawande *et al*., 2003; Kaplan *et al*., 2012; Gümüş *et al*., 2012; Feldman, 2011).

Other conditions are enabling: intense bleeding, adhesions, visceral lesions and/or traumatic vascular and multiple; labile anesthetic plan (with undesirable movement of the patient); inexperienced assistants (inadequate assistance from the operative field), poor control of the distribution of the basic material and the stock of the room during surgery (Gil-Romea *et al*., 2013; Asiyanbola *et al*., 2012; Pisal *et al*., 2003). The objects most commonly "abandoned or forgotten in the abdominal cavity are: the gauzes (7.5 x 7.5 cm) that to stay soaked in blood become virtually invisible; the pledgets of cotton, patties;some surgical instruments (forceps, scissors, retractor), tubes or drains, needles, and small calculations from manipulation of the bile ducts (Bostanci *et al*., 2015; Ogino *et al*., 2012; Bindapersad *et al*., 2012). Most of these materials probably won't be discovered, because the body, inside of their defense mechanisms, is able to wrap foreign objects, rendering them inert and incorporated into the body of your carrier, on many occasions. In these circumstances, in general, the foreign body is discovered years later, incidentally, to be shown a method of image for other purposes, or during an emergency operation (Steelman, 2012; Hamzaoui *et al*., 2012). The inflammatory reaction of peritoneal surfaces caused by foreign body begins with the migration of polymorph nuclear and macrophage's action. These contribute to formation of giant groups of cells with small cores and multiple and large amounts of cytoplasm (Norton, 2014). With each passing day there are, increasingly, networking of fibrin with fibroblast and deposition in later stage of collagen, outlining true capsules or shells, with multiple adhesions to surrounding structures, mesentery, the omentum, the parietal and visceral peritoneum (Steelman *et al*., 2015).

Sometimes, it is observed the formation of abscess in between the material and can be partially liquefied. In the case of a malleable body, this easily will shape the different forms of visceral surfaces around in intimate contact with the serous visceral, and occasionally may cause ischemia, compressive with subsequent necrosis and possibility of migration of foreign body into the intestinal lumen (Kuwashima *et al*., 1993). The foreign body in abdominal cavity, the gas compresses and example, and even small gallstones may serve as a niche for the proliferation of microorganisms and act as a primary focus for formation of abscesses and peritonitis, postoperative operations mainly contaminated or infected. Monofilament wires, small instrumental or steel needles, obviously has a lower potential for retention of bacteria and thus tend to form granulomas, aggregates with asymptomatic or only mildly symptomatic frames (Loo *et al*., 2016; Lewis *et al*., 2015; Eken *et al*., 2016). The place where the foreign body compresses contiguous structures parietal necrosis may occur of the viscera, with formation of internal or external fistulas, abscesses and peritonitis, depending on the existence or not ofadhesions (Anantha Sathyanarayana *et al*., 2015). The slow and progressive impairment of the integrity of the intestinal wall, due to ischemic phenomena, can result in partial or complete migration of foreign body into the intestinal lumen. This migration can occur within weeks or even decades. Peristaltic movements, the action of gravity and pressure of intestinal transit will gradually be pulling the foreign body to the inside of the handle (Shah *et al*., 2015; Khan *et al*., 2014; Jayadevan *et al*., 2014). An increase in abdominal pressure, such as pregnancy, or an intervention on the abdominal cavity can facilitate this migration. Rare eventualities such as ruptures of the wall of arteries or veins due to ischemic necrosis parietal, when presents, causing an acute abdomen, with high mortality rate (Yildirim *et al*., 2014).

Clinical condition

The clinical picture is highly variable, often asymptomatic. Vague complaints of pain type cramping or signs and nonspecific symptoms, such as nausea, vomiting in the postprandial period and fever of obscure etiology can also be found (Gayer *et al*., 2014). The presence of a palpable mass in the abdomen with poorly defined contours, associated with a previous history of surgery should arouse the suspicion of foreign body. Depending on the location of the same, qualify complaints of oesophagogastric reflux, or polyuria (Steelman, 2012; Kuwashima *et al*., 1993; Jacob Philip George *et al*., 2014). When there is a formation of abscesses or fistulas, especially when not blocked, there is the possibility of the patient develop with acute abdomen associated or not to septic shock. Sepsis can occur at an early stage in the postoperative, or late phase usually related to some diagnostic or therapeutic untimely manipulation. Has as predisposing factors reducing the immune response for consumptive diseases (cancer, diabetes, malnutrition, among others), or others that affect directly the organic defenses (Mohanty *et al*., 2014).

On compressive ischemia of the intestinal wall, a few symptoms may occur (postprandial plenitude, nonspecific abdominal pain).As a rule, there is diffuse peritonitis, because adhesions have formed isolating this area from the rest of the abdominal cavity. The syndromic clinical context of migration of compresses to the intestinal lumen comprises obscure etiology fever, abdominal pain, colic-type frames of alteration of intestinal transit, usually, sub occlusive or obstructive (Bostanci, 2015). The incidence of sub occlusion of the large intestine is lower than in small intestine, in the face of bigger diameter of that portion of the digestive system. Gauzes or small swabs can migrate through the digestive tract, impacting on ileocecal valve and cause stool elimination stop and/or gas, vomiting, pain and bloating (Ueda *et al*., 2014). If the material is eliminated with the feces, without further complications, during the evacuation will occur pain type cramping, sometimes jerky and strong intensity, followed by a relief of symptoms or obstructive sub occlusive.There are still, reports of foreign migration to the bladder, vagina, duodenum, among other places (Boone and Hamad, 2013). Emphasizes that the spontaneous elimination, by necessity, more frequently for the most fragile of the abdominal wall, that is, the surgical incision, and not upon migration to the lumen of hollow viscera. The clinical picture is often frustrated with fever, abdominal pain and nonspecific inspection, presence of abscess or tumor with phlogistic signs on the skin and that, when incised, reveals the foreign body (Karasaki *et al*., 2013).

Diagnosis

The diagnostic imaging methods can aid in detection of foreign body, or clarification of postoperative masses. The routine for acute abdomen or the simple abdomen radiographic study can identify the metallic material with ease and eventually to compress, by the presence of radiopaque wire. The ultrasound can characterize dough according to your echogenicity and presence of posterior acoustic shadow (Xu *et al*., 2013; Gil-Romea *et al*., 2013). However, the results may be inaccurate and little informative, especially in the immediate postoperative period, given the presence of dressing, drains, adynamic ileus

with strain and anatomical parameters change the surgical handling of the abdominal cavity. CT scan and MRI offer more diagnostic accuracy. A mass of well-defined outlines with soft tissue density, high density, or even mixed, and can contain inside air bubbles (especially when associated with the infection) and a previous history of surgery are highly suggestive evidence of foreign body (Schoenbaum, 2004; Taçyildiz and Aldemir, 2004; Smith and Brenner, 2004).The finding of an evolutionary framework of sub occlusion or mechanical obstruction, may enter the digestive system using proven methods, or colonoscopy. This last test can assist in identification of a fistulous path designed into the intestinal mucosa and contribute to the differential diagnosis. It's not always easy to distinguish the foreign body of neoplasms, and under these circumstances, sometimes the diagnostic investigation continues and the surgical indication is necessary for elucidating the etiological agent (Ogino *et al*., 2012; Jacob Philip George *et al*., 2014).

Treatment

There is no consensus on the best conduct in the treatment of foreign bodies retained in the abdomen and can be performed either by conventional surgery, as by laparoscopic (Norton, 2014; Steelman *et al*., 2015). At first, all foreign bodies must be removed when you associate the relevant signs and symptoms, organ function, change or compromise the quality of life of the patient. There are also no fundamental disagreements about the conduct in the early diagnosis. If the foreign body is detected in the first days after the operation, will be displayed to your withdrawal (Couper, 2003). At this stage the therapeutic procedure is relatively simple and without any major consequences, because there hasn't been time to form an intense inflammatory process with viscera-parietalfirm adhesions. Obvious that, in the presence of an acute abdomen caused by foreign body, surgical intervention is mandatory (Lewis *et al*., 2015). In these cases, what varies is the tactic to be used. Take into account aspects related to the time elapsed after the surgery that gave rise to the foreign body, the location of synthetic material, to the inventory of the cavity, the general condition of the patient and the surgical risk (Kaplan and Iyiköşker, 2012; Feldman, 2011; Shah *et al*., 2015).

The reoperation for removal of inorganic material retained the long time imposes technical difficulties and that start in the access to the abdominal cavity. The complexity of the surgery can be expressed in dissection and removal of foreign body, in block, next to the parietal peritoneum, segments of the digestive system and the omentum, as well as require additional care with hemostasis, recoating with the peritoneum and anastomosis (Abbott and Weber, 2005). The frequent visceral exposure can give rise to intestinal perforation, or external fistulas or inter visceral and even sepsis. Vessel damage may occur and result in bleeding, hematoma, parietal diffuse formation of aneurysms, ischemia and necrosis of intestinal segments and the great omentum, only to illustrate some complications (Mohanty *et al*., 2014). The conduct in asymptomatic patients, to an accidental finding a foreign body joined noble structures, sometimes you can be conservative, with only periodic and long-term follow-up (Annandale, 1989).

Medical-legal implications

The removal of a foreign body visible and that insinuates itself through a surgical incision in outpatient or extramural environment is contraindicated, as simple as it may seem this task, under the risk of generating a complication with great morbidity and mortality. When faced with this situation, the doctor escort must prepare the patient for the removal of the material is in the operating room, using the methods of image as subsidy for the operative tactic and in the presence of full team (anesthesiologist, auxiliary and basic) (Bindapersad *et al*., 2012). In the decade of 60, one case of foreign body removal had legal repercussion intra-abdominal, including the case law established since a judge, in his ruling, cleared the surgeon and ordered the clinician who answered the patient. In its conclusions, the distinguished honor held that this professional, opt for withdrawal in the office of a compress that hinted at by the surgical scar, made without due caution, causing the death of the patient through sepsis (Kuwashima *et al*., 1993). Foreign bodies can pass unnoticed, even in a second intervention in abdominal cavity, when there are no signs or symptoms suggestive of this condition. In these cases, the presence of adhesions also restricts the effectiveness of the inventory, especially if an inorganic material is housed in topography. The surgeon, in general, will not undo adhesions that are not bringing clinical repercussions and will limit your region or procedure viscera whose morbid condition generated the surgery. However, this condition is not devoid of medico-legal issues (Dierks, 2007; Holbrook, 2008; Noguchi, 2002).

Considering the case above, if the foreign body is identified in a future examination or is eliminated spontaneously, in fact the deal will be against the surgeon who operated on the patient for the last time (Shah *et al*., 2015; Khan *et al*., 2014; Jayadevan *et al*., 2014). This creates a perverse situation in which this physician will have to prove not only that the material was left in the abdominal cavity in previous surgery, how will have to convince the mind that it is impossible to do an inventory of a region with intense visceral lock, whose handling could result in a risk of life for the patient.Let's face it, this is a herculean task to make a neophyte in the subject to understand these nuances and technical peculiarities, in order to persuade him about the innocence of the professional and the correction surgery (Jackson and Brady, 2008). As much as I seem implausible the layman, there are also situations where, intentionally, the surgeon makes one or more foreign bodies into the abdominal cavity, without this feature, or neglect. The settings screens to the treatment of hernias of the abdominal wall and dentures are two of these examples (Asiyanbola *et al*., 2012; Schoenbaum and Bovbjerg, 2004). Of course this can lead to complications such as hematoma, adhesions, infection, fistulae, with spontaneous rejection, displacement and even bowel obstruction, but the purpose for its use is consecrated by the medical literature and therapy (Couper, 2003 ; Steelman *et al*., 2015).

There are other situations of deliberate placement of foreign body in the abdomen. In laparoscopic surgery, metal clips are commonly used and in bariatric synthetic rings are part of the technique. There is the use of prostheses for the treatment of aneurysms. Advocate if bone fixation with use of plates, rods and screws (Khan *et al*., 2014; Boone and Hamad, 2013). When addressing large intracavitary hemorrhages, the surgeon may choose to hold one or more rubbing forcefully compresses the surface bleeding so irrepressible, and program re-operation, posteriorly (24-48 hours), to the withdrawal of these patties, once stabilized the hemodynamic condition and homeostatic balance of the patient (Asiyanbola *et al*., 2012). This occurs, for example, in extensive liver damage, or exposed serosal, with bleeding in sheet from multiple hemorrhagic

spots. Patients with multiple injuries, thoracic, vascular and intestinal injuries-severe abdominal, unstable and at risk of imminent life, can also be subjected to extreme measures, such as the placing of hemostatic forceps and clamps to an initial control of intestinal damage (concept of damage control). In this context, the patient in critical condition needs to have their surgery stopped after the initial control of life-threatening injuries (Ogino *et al*., 2012; Eken *et al*., 2016; Gayer *et al*., 2014). Then, an intensive clinical support so that, in a timely manner, it is possible to make the definitive surgical procedure, with perioperative mortality reduction. This scenario, obviously lay unknown follows guidance and correct conduct and cannot be characterized as medical malpractice (Dierks, 2007).

Preventive measures to minimize the error doctor

There are ways to reduce or minimize the occurrence of withholding foreign body inside the abdominal cavity.Some surgeons bathe the white gauze on methylene blue to contrast with the blood and be displayed at the end of the surgery, or colored compresses are used, which do not yellow or red. Others hold existing tape repair clamps in compresses, positioning them externally to the abdominal cavity, this procedure to facilitate the safe withdrawal of the patties, at the end of the surgery (Feldman, 2011; Couper, 2003; Gil-Romea *et al*., 2013). The district manager should exert total control of the material used and manipulated during surgery and is allowed to alert the crew if it detects the lack of same, unless due to intentional action (sutures, prostheses, etc.). If a loose gauze was delivered to the surgeon, which is not recommended, or even attached to a clamp, both should return after use, immediately, the hands of the district manager (Mohanty *et al*., 2014). The surgeon and their auxiliaries, to be advised of the existence of a gauze in operating field, should perform a thorough search in the abdominal cavity, if the surgical time permitting. For the most part the gauze will not be in the operating field intracavitary but just lying on the floor undetected, or stuck to shoes and or surgical boots, or even under the fields. Sometimes the sound or the busboy to tell the gauze soaked in blood or secretions doesn't realize that the gauze that is missing, was glued to the other (Dagi *et al*., 2007). It is not uncommon, in the count of the patties at the end of the surgery, confusion generated by the oblivion of those that are part of the protection of the operating field. In conflict situations in which lamb doubts about the presence of foreign body, notwithstanding a negative inventory of the abdominal cavity (on all sides), you can make use of the resource of intraoperative x-ray of the abdomen, both as surgical gauze compresses a radiopaque marking visible by x-ray (Gibbs *et al*., 2007). Unfortunately, some hospitals do not follow a routine, or do not have qualified personnel and for the exercise of basic tasks of control of the operative field. The count of compresses and the control of the requested material are not foolproof, but if carried out meticulously and zealous for networking, by supporting nursing staff in the operating room, the surgical team cooperation may reduce the frequency of foreign bodies trapped in the abdominal cavity (Steelman *et al*., 2015; Kuwashima *et al*., 1993; Loo *et al*., 2016; Lewis *et al*., 2015).

Final considerations

The presence of a foreign body in abdominal cavity provides a rich material to be explored by the press.Commonly becomes prominent news and occupies the front pages of newspapers and magazines, this explored the exhaustion.

The image of a clamp in a radiological study cause great impact and tends to cause a commotion (Gayer *et al*., 2014). Of course, if the medical malpractice exists must be assessed and dealt with in all its dimensions and ramifications; medicolegal, ethical civil and criminal spheres (Loo *et al*., 2016; Lewis *et al*., 2015). So you can blame the doctor for the presence of a foreign body, is to link the professional act to a causal link, the existence of harm (physical/functional or moral sequel) and the predictability of the outcome. In general, characterized such an event as error doctor for negligence. However, unacceptable is the pretrial, against the law, with public abhorrence of the doctor, compromising so your professional image and irreversible with moral consequences capable of shattering the continuity of your coach (Holbrook, 2008).

Hardly the foreign body retention due to unforeseeable circumstances and inevitable, or even due to intentional therapy will be accepted by the court, if it is not well founded and with undeniable evidence of your need. This scenario subsidizes the importance of detailed description of the surgery, renumbered as key and indispensable when the analysis and clarification of legal demands on the subject. The culpability of the surgeon requires a deeper discussion. This, by abdominal approach, directs its attention exclusively to the operative field. Characterize as neglect certain critical situations, or even those triggered by external factors or contingencies beyond comfortable doctor, but able to disturb the surgeon during surgery is to restrict the focus of the problem in the context of medical malpractice beyond question, irrespective if the technical knowledge and the rationality of question (Holbrook, 2008; Noguchi, 2002; Jackson and Brady, 2008; Dagi *et al*., 2007). Several variables such as emergency situations, inadequate anesthesia, excessive noise in the living room, inadequate material, poor lighting, tired of the surgeon or the team in shifts with uninterrupted work may interfere, particularly, in conducting the surgery.

In operations with a high degree of technical difficulty, which is the caution used, a compress can be camouflaged in the surrounding tissues or hidden in recesses and backgrounds. Such a situation may contribute to surgeon's fallibility, not intentional, i.e. without involuntary this represents a medical error, malpractice or negligence-type impudence. Nobody leaves a needle or forceps in patient's abdomen intentionally and even today, there is no infallible measure able to offer absolute guarantee against this misfortune, in such a way that for some surgeons this fact can be equated to a risk inherent in the surgical procedure (Jackson and Brady, 2008; Dagi *et al*., 2007; Gibbs *et al*., 2007; Forgue, 1939). Evidence or evidence that surgery was tumultuous or escaped from routine for reasons that go beyond good professional practice, with responsibility only attributable to the surgeon deserve condemnation. However, random situations, often triggered by unforeseen or unavoidable factors (team shorn, life-threatening situation, public calamities, war zone) in which the doctor has made all efforts possible to achieve success, but resulted in the retention of foreign body cannot, out of hand, be characterized as medical malpractice (Dagi *et al*., 2007; Gibbs *et al*., 2007). On the other hand, surgery represents a professional act which was attended by several members (surgical team, anesthesiologist and nursing staff of the room). Wonders to what extent in a surgery could be the surgeon responsible for the failures of other members of the team given each component have a clear division of labor.

This fact acquires contours even more controversial when one considers the duty scheme, in which the composition of the team scale is independent of the choice of the surgeon (Couper, 2003; Gil-Romea, 2013; Asiyanbola *et al*., 2012; Pisal *et al*., 2003; Holbrook, 2008). Another noteworthy situation concerns the lack of a doctor-patient relationship is consistent and contributes to the generation of conflict. To jettison the patient in dialogue with the surgical team, there is an evident dehumanization of care. In an institution publishes, with certain frequency, the doctor who meets for the first time the patient is not the same that will operate it or join it postoperatively. This distance makes it even harder for the solving of problems that arise during the postoperative period, especially if related to a dispute (Holbrook, 2008; Noguchi, 2002; Jackson and Brady, 2008). Still the medico-legal aspects, it is also apparent that the esprit de corps can worsen the situation and attract more antipathy and animosity for the medical category, when not backed by pipelines cleared and settled, for clarification of the matter. It was emphasized that, sometimes, the presence of a foreign body is unpredictable occurrence and intra-abdominal in this context, considering the incidental nature of the event there is no way impute to the surgeon who operated on the patient, the sloppiness, inattention, or the omission of precautions during surgery. Not always the oblivion is the result of lack of care, but the imperfection and human fallibility in the surgery, despite the adoption of all measures of caution. Gross errors for non-compliance with the duty, casual or careless action will never be excuses (Ogino *et al*., 2012; Bindapersad *et al*., 2012; Steelman and Alasagheirin, 2012; Hamzaoui *et al*., 2012.

However, according to what has been exposed, there are the inevitable error, from circumstances that cannot be foreseen or anticipated. Responsibility for undesirable results from deficiency of infrastructure or human resources essential for the good conduct of the surgical procedure and fleeing the resolute capacity of the physician, particularly in emergency situations, also cannot be attributed, wrongly, to the surgeon (Dagi *et al*., 2007; Gibbs *et al*., 2007; Forgue *et al*., 1939). It is worthy of note constant text book published by the teachers. Forgue and Aimes in France, more than 60 years, but still very current: "abandonment, in living body, of an operation is not material, in Justice, a presumption of guilt, nor a lack systematically attributable, according to hostile trend of public spirit. It's a mistake against which no action of guarantee is absolute and that the drama of certain operations explains and can exculpar and that no coach, no matter how long that is your experience, you can declare under" (Forgue *et al*., 1939). The euphemistic use of the terms "abandonment" or "oblivion" to qualify the intracavitary foreign body retained only serves the purposes of the part interested in creating an image of effect to indict doctor and becomes, in most cases, value judgment mistaken and devoid of technical grounds.

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Competing Interests

None of the authors have any competing interests to disclose.

References

Abbott, R.L., Weber, P., Kelley, B. 2005. Medical professional liability insurance and itsrelation to medical error and healthcare risk management for the practicingphysician. *Am J Ophthalmol.* Dec;140(6):1106-1111.

Anantha Sathyanarayana, S., Deutsch, G.B., Friedman, B. 2015. An Interesting Cause ofMechanical Small Bowel Obstruction. *Indian J Surg.,* Dec;77(Suppl 2):731-2.doi: 10.1007/s12262-013-0883-7.

Annandale, E.C. 1989. The malpractice crisis and the doctor-patient relationship.Sociol Health Illn. Mar;11(1):1-23.

Asiyanbola, B., Etienne-Cummings, R., Lewi, J.S. 2012. Prevention and diagnosis of retained foreign bodies through the years: past, present, and future technologies. Technol Health Care. 20(5):379-86.

Bindapersad, M., Govender, N., Andronikou, S. 2012. MDCT in the diagnosis of small-bowel obstruction by a retained surgical swab. *S Afr J Surg.*, Feb 14;50(1):23-4.

Boone, B.A., Hamad, G.G. 2013. A well-circumscribed, painless abdominal mass. JAMA Surg. 2013 Nov;148(11):1071-2. doi: 10.1001/jamasurg..314.

Bostanci, O., Idiz, U.O., Yazar, M., Mihmanli, M. 2015. A Rare Complication of Composite Dual Mesh: Migration and Enterocutaneous Fistula Formation. *Case Rep Surg.*, 2015:293659. doi: 10.1155/2015/293659.

Couper, R.T. 2003. Risk factors for retained instruments and sponges after surgery. N Engl J Med. 2003 Apr 24;348(17):1724-5.

Dagi, T.F., Berguer, R., Moore, S., Reines, H.D. 2007. Preventable errors in the operating room-part 2: retained foreign objects, sharps injuries, and wrong site surgery. *Curr Probl Surg.* Jun;44(6):352-81.

Dierks, C. 2007. Patient oriented communication. Dealing with risks and errors. *Orthopade.* Jun;36(6):567-9.

Eken, H., Soyturk, M., Balci, G., Firat, D., Cimen, O., Karakose, O., Somuncu, E. 2016. Gossypiboma Mimicking a Mesenchymal Tumor: A Report of a Rare Case. *Am J CaseRep.,* Jan 15;17:27-30.

Feldman, D.L.2011. Prevention of retained surgical items. *Mt Sinai J Med.*, Nov-Dec;78(6):865-71.

Forgue, É., Aimes, A., Les "pièges" de la chirurgie en diagnostic et thérapeutique; erreurs et fautes ou faits présumés tels, conditions et limites de la responsabilité. Published by Masson; Paris; 1939.

Gawande, A.A., Studdert, D.M., Orav, E.J., Brennan, T.A., Zinner, M.J. 2003. Risk factors for retained instruments and sponges after surgery. *N Engl J Med.* Jan16;348(3):229-35.

Gayer, G., Lubner, M.G., Bhalla, S., Pickhardt, P.J. 2014. Imaging of abdominal and pelvic surgical and postprocedural foreign bodies. Radiol Clin North Am. Sep;52(5):991-1027. doi: 10.1016/j.rcl.2014.05.006.

Gibbs, V.C., Coakley, F.D., Reines, H.D. 2007. Preventable errors in the operating room:retained foreign bodies after surgery--Part I. *Curr Probl Surg*. May;44(5):281-337.

Gil-Romea, I., Valcarreres-Rivera, M.P., Palacios-Gasos, P., Lamata-Delaorden, L., Quintana-Martínez, J., Moreno-Mirallas, M.J. 2013. Postoperative intra-abdominal foreignbody resemblance to neoplasm. Report of a case and review of the bibliography.Cir Cir. Mar-Apr;81(2):148-52.

Gil-Romea, I., Valcarreres-Rivera, M.P., Palacios-Gasos, P., Lamata-Delaorden, L., Quintana-Martínez, J., Moreno-Mirallas, M.J. 2013. Postoperative intra-abdominal foreign body resemblance to neoplasm. Report of a case and review of the bibliography.Cir Cir. Mar-Apr;81(2):148-52.

Gümüş, M., Gümüş, H., Kapan, M., Onder, A., Tekbaş, G., Baç, B. 2012. A serious médico-legal problem after surgery: gossypiboma. *Am J Forensic Med Pathol*. Mar;33(1):54-7.

Hamzaoui, M., Gasmi, M., Ben Aoun, J., Fitouri, F., Sghairoun, N., Sahli, S. 2012. Urinary bladder gossypiboma in a child. *Tunis Med.,* Aug-Sep;90(8-9) :665-6.

Holbrook, J.R. 2008. Negotiating, mediating, and arbitrating physician-patientconflicts. *Clin Obstet Gynecol*. Dec;51(4):719-30. doi:10.1097/GRF.0b013e3181899cf9.

Jackson, S., Brady, S. 2008. Counting difficulties: retained instruments, sponges, and needles. AORN J. Feb;87(2):315-21.

Jacob Philip George, A,, Mukha, R.P., Kekre, N.S.2014. Gossypiboma mimicking aretroperitoneal tumor. Urology. 2014 Oct;84(4):e13-4. doi:10.1016/j.urology.06.018.

Jayadevan, R., Stensland, K., Small, A., Hall, S., Palese, M.2014. A protocol to recoverneedles lost during minimally invasive surgery. JSLS. Oct-Dec;18(4). pii:e2014.00165. doi: 10.4293/JSLS.2014.00165.

Kaplan, M., Iyiköşker, H.I. 2012. A new complication of retained surgical gauze:development of malignant fibrous histiocytoma--report of a case with a literaturereview. *World J Surg Oncol*. Jul 9;10:139.

Karasaki, T., Nomura, Y., Nakagawa, T., Tanaka, N.2013. Beware of gossypibomas. BMJ Case Rep. 2013 Jun 21;. pii: bcr2013010059. doi: 10.1136/bcr-2013-010059.

Khan, H.S., Malik, A.A., Ali, S., Naeem, A. 2014. Gossypiboma as a cause of intestinal obstruction. J Coll *Physicians Surg Pak*. Nov;24 Suppl 3:S188-9. doi: 11.2014/JCPSP.S188S189.

Kuwashima, S., Yamato, M., Fujioka, M., Ishibashi, M., Kogure, H., Tajima, Y. 1993. MR findingsof surgically retained sponges and towels: report of two cases. *Radiat Med.* May-Jun;11(3):98-101.

Lewis, D., Jivraj, A., Atkinson, P., Jarman, R.2015. My patient is injured: identifyingforeign bodies with ultrasound. Ultrasound. 2015 Aug;23(3):174-80. doi:10.1177/ 1742271X15579950

Loo, J.T., Duddalwar, V., Chen, F.K., Tejura, T., Lekht, I., Gulati, M. 2016. Abdominalradiograph pearls and pitfalls for the emergency department radiologist: apictorial review. Abdom Radiol (NY). 2016 Aug 9.

Mohanty, D., Garg, P.K., Kumar, A., Jain, B.K. 2014. Abdominal lump with intestinal obstruction: prior history of abdominal surgery is a clue to diagnosis. Ann AfrMed. Apr-Jun;13(2):95-6. doi: 10.4103/1596-3519.129893.

Noguchi, T.T. 2002. Medical malpractice claims and quality improvement program asviewed by a forensic pathologist. Nihon Hoigaku Zasshi. Sep;56(2-3):205-18.

Norton, E. 2014. Using technology to prevent retained sponges. AORN J. Apr;99(4):C5-6.

Ogino, T., Sekimoto, M., Nishimura, J., Takemasa, I., Mizushima, T., Ikeda, M., Yamamoto, H., Doki, Y., Mori, M. 2012. Intraluminal migration of a spacer with small bowel obstruction: a case report of rare complication. *World J Surg Oncol.*, Feb 6;10:30. doi: 10.1186/1477-7819-10-30.

Pisal, N., Sindos, M., Henson, G. 2003. Risk factors for retained instruments and spongesafter surgery. *N Engl J Med.*, Apr 24;348(17):1724-5.

Schoenbaum, S.C., Bovbjerg, R.R. 2004. Malpractice reform must include steps to preventmedical injury. *Ann Intern Med*. Jan 6;140(1):51-3.

Shah, S., Qureshi, F., Rakhio, S.2015. Iatrogenic foreign body in the urinary bladder. *JColl Physicians Surg Pak.*, Apr;25(4):304-5. doi: 04.2015/JCPSP.304305.

Smith, J.J., Brenner, R.J. 2004. The malpractice liability crisis, part 2: moving toward workable solutions. *J Am Coll Radiol.* Apr;1(4):249-54.

Steelman, V.M., Alasagheirin, M.H. 2012. Assessment of radiofrequency device sensitivity for the detection of retained surgical sponges in patients with morbid obesity. *Arch Surg.*, Oct;147(10):955-60.

Steelman, V.M., Schaapveld, A.G., Perkhounkova, Y., Storm, H.E., Mathias, M. 2015. The HiddenCosts of Reconciling Surgical Sponge Counts. AORN J. Nov;102(5):498-506. doi: 10.1016/j.aorn.2015.09.002.

Taçyildiz I., Aldemir, M. 2004.The mistakes of surgeons: "gossypiboma". Acta ChirBelg. Feb;104(1):71-5.

Ueda, T., Takaoka, H., Petrovitch, I., Rubin, G.D. 2014. Detection of broken sutures andmetal-ring fractures in AneuRx stent-grafts by using three-dimensional CTangiography after endovascular abdominal aortic aneurysm repair: association withlate endoleak development and device migration. Radiology. Jul;272(1):275-83. doi: 10.1148/radiol.14130920.

Xu, J., Wang, H., Song, Z.W., Shen, M.D., Shi, S.H., Zhang, W., Zhang, M., Zheng, S.S. 2013. Foreign body retained in liver long after gauze packing. *World J Gastroenterol*. Jun 7;19(21):3364-8. doi: 10.3748/wjg.v19.i21.3364.

Yildirim, A., Imamoğlu, H., Erzurumdağ, A., Doğan, S. 2014. Gossypiboma as a rare cause of abdominal mass. BMJ Case Rep. 2014 Nov 20; pii: bcr2014204330. doi: 10.1136/bcr-2014-204330.

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