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Three years evaluation of retained foreign bodies after surgery in Iran

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ABSTRACT

Background: Medical errors such as retained foreign bodies (RFB) during surgery are not well studied. To define risk factors associated with this type of error, we performed retrospective study.
Methods: We reviewed medical records for unintentional foreign object remaining in the body during surgery such as gender, age, surgery ward, and incident reports referred to several forensic medicine administrations as well as adverse effects of retained foreign bodies and methods for detection of them over a 3-years period from January 2008 through May 2011.
Results: Thirty eight patients were involved in the study to have retained foreign bodies (73% sponges and 27% other instruments including 7 (18.42%) cases of other bandages, 2 cases (5.26%) of scissor and 1 case (2.63%) of forceps). The general surgery ward was most commonly involved (47%) followed by the gynecology surgery ward (34%). Men (58%) were more involved with RFB than women (42%).
Conclusion: Considering the most frequent type of retained foreign bodies and also more frequent involved surgery wards besides detection methods for RFB, a mixed of preventing protocols such as regular counting of devices, post-operative X-ray with radiopaque markers and exact evaluation of surgery site should be employed to reduce the occurrence of retained foreign bodies and its complications.

1. Introduction

Surgical cases where instruments or sponges are left behind following a surgical procedure are fortunately uncommon, but potentially dangerous medical errors [1]. The literature reports an estimated 1:1000 to 1:1500 intra-abdominal surgeries result in a retained foreign body (RFB) [1,2]. In a systematic review study, the median incidence estimate for retained surgical items was 1.32 events per 10000 surgical procedures [3]. However, the magnitude of the problem is most likely underestimated because of the reluctance on the part of clinicians and hospitals to disclose these types of errors [2].

Although a rare event, one of the most common and poorly understood medical errors in surgery involves leaving sponges or instruments inside patients after surgery [4]. Furthermore, publishing RFB data are often hampered by the confidentiality requirements of insurance and legal claims [5]. However, retained foreign body cases are avoidable, frequently injurious, and are associated with a high likelihood of litigation [1]. Surgical sponges are usually the most commonly reported retained items [6,7]. Incidence estimates varied widely and ranged from no retained sponges 30 to 3.04 retained guidewires 34 per 10000 procedures [3]. In some studies, it was stated that events were discovered even when surgical counts were recorded as correct and/or routine radiographic imaging was performed [8–11]. Objects can be recognized incidentally during the postoperative period, manifest themselves clinically through symptoms or complications, or lay dormant for years [12]. Clinical morbidity resulting from RFB includes persistent inflammation, obstruction, or septic

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complications [7,13]. Operations should include counts of soft goods, needles, miscellaneous items, and instruments, and efforts should be made to prevent retention of fragments of broken devices. If a count discrepancy occurs, the perioperative team should follow procedures to locate the missing item. Perioperative leaders may consider the use of adjunct technologies such as bar-code scanning, radio-frequency detection, and radio-frequency identification [14].

For these reasons, identifying risk factors associated with this type of medical error is important and could lead to changes in operating room policy intended to reduce the errors. We performed a retrospective study to evaluate different aspects of RFB.

2. Materials and methods

In a retrospective study, all cases referred to Iranian forensic medicine administrations for unintentional retained foreign body during 3 years from January 2008 through May 2011 were involved.

In a case series study, the cases were referred to forensic medicine administrations of Iran for compliance about medical errors and malpractice with the focal point of retained foreign bodies. The patients lacking date from their files or incorporative for this study were not included in this study. Totally 43 cases of RFB were referred to legal medicine organization while only 38 cases obtained needed criteria to be involved in the study.

Variables were identified including operating room circumstances, and operating room staff involvement, patients' age, gender, type of retained foreign body, surgery wards, time to discovery of RFB, side effects of RFB and methods of finding RFB.

2.1. Statistical analysis

The data were analyzed using SPSS version 20.0. Descriptive data were presented in Mean ± SD and frequency (%) and non-parametric data were compared using Chi-square test. P values < 0.05 were considered as statistically significant.

3. Results

We identified 38 cases including 22 males (57.89%) and 16 (42.10%) females with the average age of 29.47 ± 6.7 that met our entry criteria to be included in this study. Of the 38 retained foreign body cases, 28 (73.68%) involved sponges and 7 (18.42%) involved other bandages, 2 cases (5.26%) of retained scissor and 1 case (2.63%) of retained forceps (Graph 1). Frequency of sponges were significantly more than other types of RFB. ($P = 0.031$).

The mean time to discovery of RFB was 76 days, with the minimum time of 12 days and longest discovery time of 8.5 years after surgical operation. The retained objects were discovered by either physical exam (12: 31.57%) or radiological evaluation (26: 68.42%). No death was attributable to RFB; however, all of the cases did require a reoperation. The patients experienced morbidity from the RFB including pain (84.32%), fever (51.32%), sepsis (44.73%), intra-abdominal abscess (23.68%) as well as bowel obstruction and bowel perforation (2.63%). There was no case of accidental finding of the retained foreign body and all of them had compliance about fever, pain and, etc.

There were several patients with RFBs presenting as intra-abdominal mass (gossypiboma) whom were reported with retained sponges and bandages, but no case of fistula was reported.

The retained foreign bodies had occurred at different departments including 18 cases (47.36%) at general surgery wards, 13 cases (34.21%) at gynecology surgery wards, 5 cases (13.15%) at orthopedics surgery wards and, 2 cases (5.26%) at cardiac surgery wards (Graph 2). There was no data about surgery place for 5 cases.

Statistical comparison of different surgery wards showed that general surgery was significantly more involved compared with other surgery wards. ($P = 0.023$).

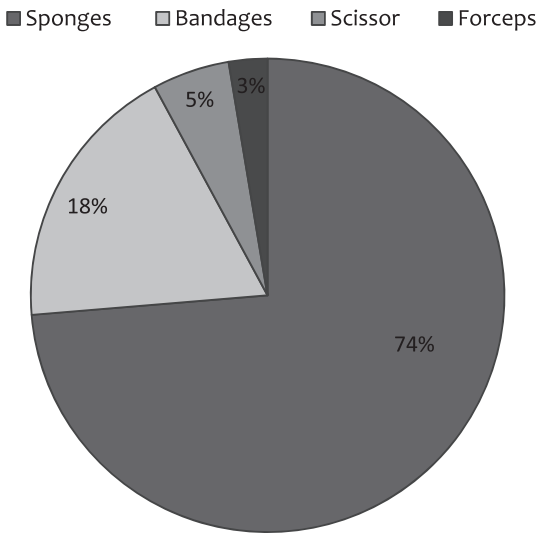

Fig. 1. Frequency of the type of retained foreign bodies referred to forensic medicine administration.

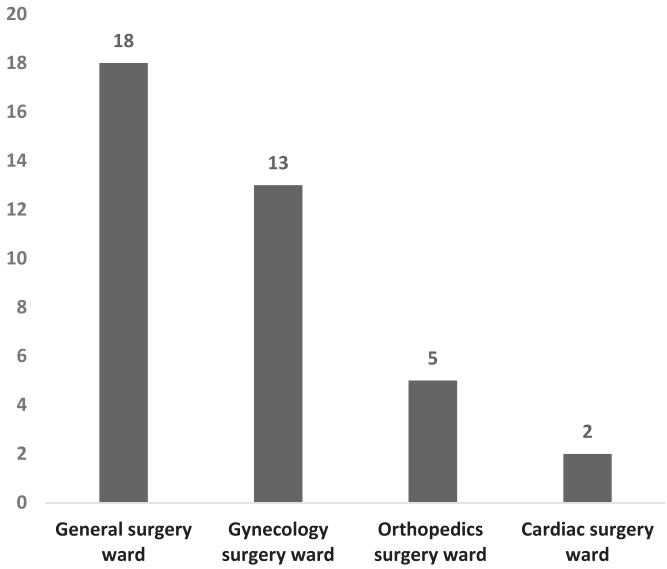

Fig. 2. Involvement of different surgery wards for incidence of retained foreign bodies referred to forensic medicine administration.

Foreign objects were left behind in all body cavities including peritoneal cavity, pleural cavity, gastrointestinal tract, urogenital system, facial area, pelvic cavity with the majority abdominal and peritoneal cavity (55.26%) and thoracic or pleural cavity (18.42%)

Table 1
Involved anatomical area for retained foreign bodies referred to forensic medicine administration.

Anatomical Area	Frequency (%)	P-Value
Peritoneal cavity	21 (55.26%)	0.012
Pleural Cavity	7 (18.42%)	
Gastrointestinal tract	2 (5.26%)	
Urogenital System	3 (7.89%)	
Facial Area	1 (2.63%)	
Pelvic cavity	4 (10.52%)	