Retained Fragment of Surgical Gauze in Hip Arthroplasty – Case Report and Literature Review.

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ABSTRACT

Cases of retained foreign body are rarely reported due to its medico-legal implications. We present a case of retained surgical gauze fragments after bipolar hemiarthroplasty of hip in a patient who sustained left neck of femur fracture. This complication occurred despite strict adherence to standard operating theater protocols which includes meticulous swab and instrument count. We propose an additional operating room processes and surgical technique in preventing such complications in future hip arthroplasties in our centre.

Keyword*:* Foreign body, femur neck fracture, gossypiboma, hemiarthroplasty, medico-legal

INTRODUCTION

Retained foreign body during surgery does not only cause harm to patients but is also a stressful psychological and emotional event to surgeons and operating room personnel due to its associated medico-legal implications.[1] Cases of retained foreign body continue to be reported in literatures despite implementation of standard practices in operation theaters such as using radio-opaque materials in surgical gauzes, correct swab and instrument count before closure of operation site. We present a case of retained surgical gauze fragment in a patient who underwent a bipolar hemiarthroplasty for a sustained neck of femur fracture and propose an additional operating room processes in our centre, to prevent such complication in hip replacement surgeries in the future.

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CASE REPORT

A 74 years old female lady presented to our center after a fall at home due to slippery floor. Patient was unable to ambulate after the fall due to severe pain over left hip. On examination, the left lower limb was shorter and externally rotated. There were no bruises noted over the left hip and buttock region. No neurovascular deficit was found. Plain radiograph of the pelvis and left hip showed a Garden type III left neck of femur fracture (Figure 1). Initial management includes the application of skin traction and deep vein thrombosis prophylaxis. She was planned for a cemented bipolar hemiarthroplasty.

The bipolar hemiarthroplasty was performed via a direct lateral approach. A surgical gauze was inserted into the acetabulum to

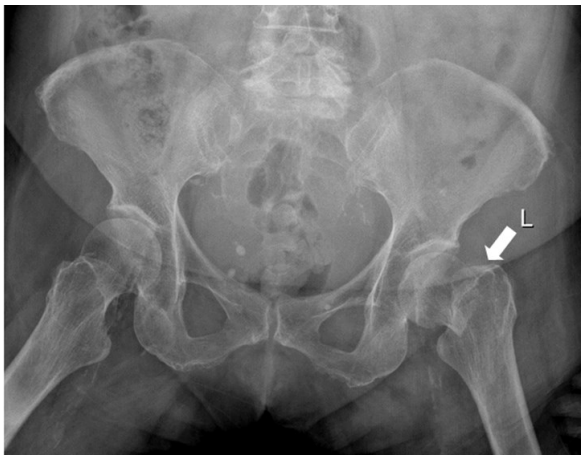

Figure 1: Plain radiograph showing left neck of femur fracture. (Click to enlarge)

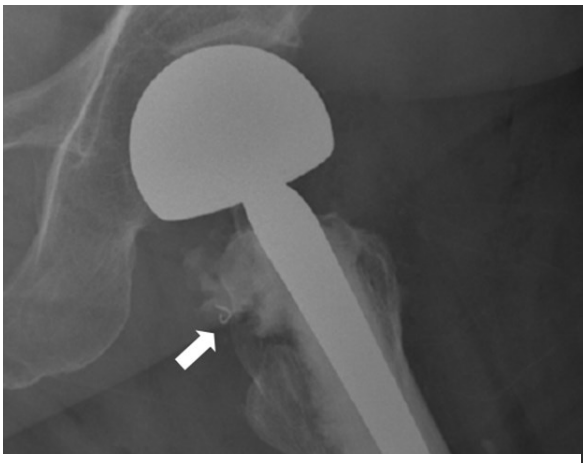

Figure 2: Enlarged image of a plain radiograph (lateral view) showing radio-opaque foreign body. at posterior aspect of the proximal femur. (Click to enlarge)

prevent accumulation of bone cement debris in the joint before proceeding to applying bone cement to the femur. Once this was completed, the femoral component of the prosthesis was inserted. Anteversion of the implant was controlled using the instrument provided. The surgical gauze in the acetabulum was removed after the cement has hardened. Other operative procedures were done as per standard practice.

Post-operative plain radiograph was taken in the ward, which showed a fragment of radio-opaque material retained at the posterior aspect of the neck of femoral, measuring approximately 1cm in length (Figure 2). The patient was informed regarding the findings and a revision surgery for foreign body removal was carried out (Figure 3).

Subsequently she was started on one week of intravenous antibiotics, physiotherapy and was discharged home well. Patient was able to ambulate without aid during a routine post-operative follow up 2 months later and exhibit no signs of infection.

DISCUSSION

The prevalence of retained foreign body in orthopaedic surgeries is unknown. Such cases are rarely reported due to its medicolegal implications. Literature search reveals that most cases of retained foreign body were discovered years later after the initial surgery.[1] A large majority of these cases present as swellings described as gossypiboma near previous operation site mimicking the presentation of soft tissue tumors, hemorrhagic granuloma or aggressive granulomatous lesions.[2,3]

Orosco et al reported that retained foreign body constitutes 6 percent of all the medical malpractice allegations between 1990 till 2006. In addition, they also found that there has been a rise in surgical malpractice claim amount. Patient's outcome was reported to be the strongest predictor in determining payment size.[1]

Moreover, retained foreign body after abdominal surgery has been widely reported.

Figure 3: Picture showing the foreign body removed. Note that the Raytec of the surgical gauze can be visualized in radiograph while the long cotton material was radiolucent.

Sharma et al had documented several types of foreign body found in patients in India such as abdominal gauzes, scissors, scalpels, forceps and needles.[4] Retained surgical gauzes after hip, femur and spine surgeries have also been reported previously.[3,4] Dalbayrak et al presented a case of retained surgical gauze mimicking sacral tumor 31 years after lumbar spine surgery was performed.[3] Sahin et al had also reported similar cases of gossypiboma found in the spine, which was misdiagnosed as tumors.[5] Connelly et al reported a case of retained pulsatile lavage tip after pelvic surgery.[6] He further discussed regarding the process-related error of removal of central filter cap of the irrigation tip, which was perceived to reduce irrigation time and increase outflow of washing solution. Despite that being the standard practice in his center, these findings prove to be crucial in prevention of future occurrence.[6]

Retained foreign body was found to demonstrate either an aseptic fibrinous process leading to granuloma formation, or an exudative inflammatory reaction causing abscess formation.[7] Masatoshi et al had reported a case of microscopic surgical gauze particles causing foreign body granuloma evident by similar microscopic birefringence appearances of the excised granuloma with a non-absorbable braided cotton surgical gauze.[2]

In this case report, the retained surgical gauze could be easily identified due to its radio-opaque Raytec component. We believe that cases of retained foreign body are under-reported as the retained surgical cotton could be radiolucent without the Raytec component and therefore will not be discovered during routine post-operative radiograph. Ghahremani et al had presented a case of retained surgical gauze after a hip replacement surgery diagnosed using 99mTc-labeled Ubiquicin scan.[8] In his report, he successfully demonstrated the use of this non-invasive scan in helping with the diagnosis of a retained foreign body. Takigami et al had reported a similar case in a total hip replacement in 2008.[9]

It is a standard practice in our institution during hip hemiarthroplasty and total hip replacement to insert a surgical gauze into the acetabulum before applying bone cement to prevent spilling of bone cement on the articulating surface of the acetabulum. The surgical gauze is usually removed after insertion of the hip implant and only when the cement has hardened. We suspect a part of the surgical gauze was caught and torn off by the sharp edges of the bone cement formed around the proximal femur. The quantity of swabs and instruments were accounted for before closure of the surgical wound. However, this process is inadequate to detect errors as described by this case report.

CONCLUSION

In conclusion, we advocate additional operating room processes to ensure that the surgical gauze used to cover the acetabulum during application of bone cement be removed before bone cement hardens. Secondly, excessive cement at the proximal femur should be removed before removing the gauze. Thus, by applying these additional processes, we hope that such cases of retained surgical gauze fragments after hip hemiarthroplasty will be prevented in future cases. We also suggest that the posterior aspect of the proximal femur should be carefully inspected by internally rotating the affected lower limb. Lastly, all surgical gauzes removed from the surgical site should be inspected to ensure they are complete. We strongly believe that incidence of retained foreign body especially surgical swabs will be drastically reduced with implementation of these additional yet vital processes.

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