Osteomyelitis After Robotically Assisted Laparoscopic Sacral Colpopexy

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LETTER TO THE EDITOR

Dear Editor,

Osteomyelitis following robot assisted sacral colpopexy is a rare entity. Till now only two cases have been reported (1, 2). In 2010, Muffly et al described a life-threatening case of osseous infection (L5/S1) and epidural abscess 4 months after robot assisted sacral colpopexy using a synthetic mesh. The correction of complications required surgical intervention, including sacral debridement, discectomy, mesh removal and abscess drainage. However, in the case reported by Nosseir, the sacral osteomyelitis did not require neither reoperation or mesh removal. The infection was treated with 8 weeks of outpatient antibiotic treatment.

Sacral osseous infections after colpopexy are likely to have a multifactorial origin. Innovative surgical procedures, such as robotic assisted laparoscopic operations, present the advantage of a key hole operation which have as a consequence significantly less pain, less blood loss, better aesthetic result, more precise surgical manipulations and shorter hospital stay as well as shorter recovery time. Nevertheless, the absence of haptic feedback in manipulations through robot can lead the surgeon to place sutures deeper in the tissues, especially in periosteum of the sacral promontory, creating a site of potential infection. In theory, another risk factor that could lead to this complication is the possible ischemia resulted from the devascularization during routine dissection and the foreign body implantation. At this point, this disadvantage could be bypassed with the palpation of the promontory by the assistant surgeon, who through conventional laparoscopy, can direct the surgeon to the precise position for suture placement. Moreover, the utilization of braided sutures in the vaginal fibromuscular tissue for the attachment of the mesh may represent another possible risk factor of osteomyelitis. There is a hypothesis that with the use of braided sutures, the bacterial adherence of suture materials is increased (3, 4). In addition, the use of monofilament sutures can avoid surgical infections from any microorganisms. The concurrent placement of the mesh

immediately after hysterectomy could also be considered as another potential risk factor of sacral osteomyelitis (5). The creation of multiple layers of tissue over vaginal apex before attaching the mesh could form an extra tissue barrier that may avoid vaginal mesh erosion. Furthermore, the immunologic status of the patient as well as various medical comorbidities (such as diabetes mellitus) could be another reason for the appearance of infections in this type of surgical operations.

In sacrocolpopexy, the suspension of the vaginal vault most frequently is performed by attaching the vault to the anterior longitudinal ligament of the sacrum by utilizing sutures. In order to facilitate laparoscopic procedures, the sacral fixation is realized with the insertion of bone anchors, which very often are made by titanium (6). The use of titanium tacks have been used in pubic fixation during urinary incontinence procedures for more than 10 years. In addition, these types of bone anchors decrease the total operative time and reduce the risk of life-threatening hemorrhage from the vessels collocated at the sacrum area. Until now, the rate of pubic osteomyelitis related to such procedures has been reported to be 1.3% (7). Though, the anatomic difference between sacral and pubic bone fixation may differ in the fact that it is a clean procedure as opposed to urinary incontinence operations as clean contaminated procedure. Thus, the relative infection rate may also be different.

In the treatment of sacral bone infections, the surgical debridement of the infected area from the necrotic materials might be necessary, while proper antimicrobial therapy should be established as soon as possible. Currently, the antibiotic treatment may include prolonged antibiotic courses, which according to the available recommendations in the literature for management of lumbar osteomyelitis, should last at least 4 to 6 weeks of parenteral administration, in order to penetrate bone and joint cavities (8). For example, in the case reports identified in the current literature, the cultures revealed either methicillin-resistant coagulase-negative Staphylo-

coccus aureus treated with intravenous vancomycin and ampicillin-sulbactam for 6 weeks or methicillin-sensitive Staphylococcus aureus treated with intravenous nafcillin for 8 weeks (1, 2).

In conclusion, patients with referred back pain and vaginal drainage subsequent sacral colpopexy with use of synthetic mesh and fixation materials should be evaluated with a high level of suspicion for osteomyelitis. Clinical decisions as well as follow-up can be assisted by the assessment of magnetic resonance imaging, white cells blood count and c-reactive protein. Nevertheless, surgeons should always inform, independently of the surgical route selected, their patients about the possible complications of such procedures including sacral osteomyelitis.

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