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ORIGINAL ARTICLE

Percutaneous transgluteal drainage of pelvic abscesses in interventional radiology: A safe alternative to surgery



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KEYWORDS

Transgluteal drainage;
Pelvic abscess;
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Summary

Aim: Interventional radiology plays an important role in the management of deep pelvic abscesses. Percutaneous drainage is currently considered as the first-line alternative to surgery. A transgluteal computed tomography (CT)-guided approach allows to access to deep infected collections avoiding many anatomical obstacles (vessels, nerves, bowel, bladder). The objective of this study was to assess the safety and efficacy of a transgluteal approach by reviewing our clinical experience.

Materials and method: We reviewed medical records of patients having undergone percutaneous CT-guided transgluteal drainage for deep pelvic abscesses. We focused on the duration of catheter drainage, the complications related to the procedures and the rate of complete resolution.

Results: Between 2005 and 2013, 39 patients (27 women and 12 men; mean age: 52.5) underwent transgluteal approach CT-guided percutaneous drainage of pelvis abscesses in our department. The origins of abscesses were postoperative complications in 34 patients (87.2%) and infectious intra-abdominal disease in 5 patients (12.8%). The mean duration of drainage was 8.3 days (range: 3–33). Laboratory cultures were positive in 35 patients (89.7%) and *Escherichia coli* was present in 71.4% of the positive samples. No major complication was observed. Drainage was successful in 38 patients (97.4%). A transpiriformis approach was more significantly associated with intra-procedural pain ($P=0.003$).

Conclusion: Percutaneous CT-guided drainage with a transgluteal approach is a safe, well-tolerated and effective alternative to surgery for deep pelvic abscesses. This approach should be considered as the first-line intention for the treatment of deep pelvic abscesses.

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Introduction

Percutaneous drainage is a safe alternative to surgery for the management of intra-abdominal or pelvic abscesses. The approach is a challenge for deep pelvic abscesses because of many anatomical obstacles (i.e. pelvic bones, iliac vessels, bladder, bowel, uterus, vagina and nerves). A transgluteal CT-guided approach through the great sciatic foramen is preferred when the abscess is inaccessible with an anterior route. The objective of this retrospective study was to highlight the safety and efficacy of the transgluteal approach in the management of deep pelvis abscesses.

Materials and method

Patients

By searching in our radiological database, we found that 39 patients (27 women and 12 men; mean age: 52.5 [range: 14–88]) had undergone a CT-guided percutaneous drainage with a transgluteal approach in our institution for deep pelvic abscesses between January 1, 2005, and December 21, 2013. We reviewed medical records and focused on the bacteriological results, the gauge of catheter used, the duration of drainage, the complications related to the procedures and the success rate. The main characteristics of the patients are summarized in Table 1. The mean white blood cell count was 12,271/mm³ (range: 3200–28,900) and the mean serum C-reactive protein (CRP) level was 125 mg/L (normal reference value: <5 mg/L, range: 3–360). Thirteen patients had a normal white blood cell count and only one patient had a normal CRP level. The abscesses were related to postoperative complications in 34 patients (secondary abscesses, 87.2%) and inflammatory or infectious intra-abdominal disease in 5 patients (primary abscesses, 12.8%) including acute complicated diverticulitis ($n=2$), appendicitis ($n=1$), Crohn's disease ($n=2$). Postoperative abscesses were mainly related to colorectal ($n=21$) and post-peritonitis surgery ($n=10$). The mean postsurgical delay was 22.7 days (range: 3–240). Bacteriological samples of the aspirated fluids were positive in 35 patients



Figure 1. Axial CT image at the level of the sacrospinous ligament (open arrow), showing the sciatic nerve and the inferior gluteal vessels (solid arrow). A deep pelvic abscess (asterisk) is located in the retrorectal area.

(89.7%) and revealed a polymicrobial infection in 20 patients (57.1%). *Escherichia coli* was present in 71.4% among the positive samples. A fungal infection (*Candida albicans*) was noted in one case. On initial CECT, twenty-eight patients (71.8%) had simple abscesses whereas eleven patients (28.2%) presented with complex abscesses. The mean diameter of pelvic abscesses was 68 mm (range: 30–108).

Radiological procedure of percutaneous transgluteal drainage

Transgluteal percutaneous drainages were performed by two interventional radiologists using CT guidance. The diagnosis of deep pelvic abscess was confirmed on an initial contrast-enhanced (CE) CT scan allowing to assess the feasibility of a transgluteal approach, establish the depth of the pelvic collection and search for other abdominal collections. We distinguished simple and complex abscesses. A simple abscess was defined as a single, uniloculated collection with no enteral fistulae. A complex abscess was defined as a multiloculated collection with or without enteral fistula. The indication of transgluteal percutaneous drainage was validated both by the interventional radiologist and the surgeon. Haemostasis parameters were checked before the procedure, in order to identify and correct any coagulation disorders. The procedure was explained to the patient to obtain a better cooperation. The patients were placed in the ventral or lateral decubitus position. The transgluteal approach requires precise anatomical knowledge of the pelvic region and anatomical landmarks (such as the sacrospinous ligament, piriformis muscle, sacral plexus, sciatic nerve and gluteal vessels) to avoid nervous and vascular complications (Figs. 1 and 2). The ideal route pass through the greater sciatic foramen and the catheter is placed as close as possible to the sacrum, at the level of the sacrospinous ligament. The infrapiriformis approach was preferred to avoid the sciatic nerve, the sacral plexus and the gluteal vessels. However, if an infrapiriformis access was unfeasible, a transpiriformis approach was performed.

Table 1 Main characteristics of patients with deep pelvic abscess.

Sex, female/male	27/12
Age, mean (range)	52.5 (14–88)
C-reactive protein (mg/L), mean (range)	125 (3–360)
White blood cell count (mm ³), mean (range)	12,271 (3200–28,900)
Origin of pelvic abscess	
Primary abscess, n (%)	5 (12.8)
Crohn disease, n	2
Acute diverticulitis, n	2
Acute appendicitis, n	1
Postsurgical abscess, n (%)	34 (87.2)
Colorectal surgery, n	21
Peritonitis, n	10
Appendectomy, n	2
Sleeve gastrectomy, n	1
Postsurgical delay, mean (range) ^a	22.7 (3–240)

^a Expressed in days.

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