Bilateral sterile gluteal abscesses following intramuscular injection of Penicillin: CT appearance
S Peungjesada, P Gupta, G Rice, V Ghole, M Ketkar

INTRODUCTION
Sterile gluteal abscesses are rare and unique complications of intramuscular injections. We are presenting a case of sterile bilateral gluteal abscesses from intramuscular injection of penicillin with computed tomographic (CT) features, rarely described.

CASE REPORT
A 61 year old male patient with no significant past medical history presented to his primary physician with three month history of progressive dyspnea on exertion, fatigue and chest pain. His physical examination was unremarkable except for bilateral inguinal lymphadenopathy and healed left third toe ulcer.

His initial laboratory results were abnormal for high white blood cell count of 33.7 x 10^3/uL (Neutrophils 26%, Lymphocytes 18%, Monocytes 5%, Eosinophils 1%, Bands 16%, Metacytes 2%, myelocytes 7% and Blasts 2%), low hemoglobin level of 3.0 g/dL, low hematocrit of 9.2 % and low platelet count of 14 x 10^3/uL. A diagnosis of symptomatic anemia was made with peripheral smear concerning for myeloproliferative disorder. A bone marrow biopsy performed one week later confirmed the diagnosis of myelodysplastic syndrome. The initial blood work was also abnormal for reactive Rapid Plasma Reagin (RPR) with RPR titer of 1:4 and reactive microhemagglutination test for antibodies to Treponema pallidum (MHA-TP). His HIV serology was negative. He denied ever been treated for syphilis. As he didn’t have any neurological symptoms, diagnosis of latent syphilis of unknown duration was made. It was decided to treat him by Benzathine Penicillin G 2.4 million units intramuscularly weekly for three doses with 1.2 million units in each gluteus maximus muscle each time. After few days of the third injection patient noticed some fluctuance and softness in both gluteal regions, however there was no pain or fever. He had a contrast enhanced CT scan of abdomen and pelvis for staging of his myelodysplastic syndrome few weeks later which showed fluid collections in bilateral gluteus maximus muscles (figure 1), approximately measuring 2.7 x 1.7 cm on the right side and 2.8 x 2.0 cm on the left side with faint ill defined enhancing margins. As there was no fever, pain or evidence of overlying cellulitis, a diagnosis of sterile abscesses was made. It was treated with conservative treatment with continuous application of warm moist compresses. The fluctuance subsided after few days. The patient died few months later due to complications related to myelodysplastic syndrome despite aggressive chemotherapy.
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Figure 1
Figure 1: Contrast enhanced CT scan at the level of mid pelvis show fluid collections with ill defined faint enhancing margins in bilateral gluteal maximus muscles (arrows) representing sterile abscesses secondary to intramuscular injection of penicillin medication. The bacteria can be carried to the tissues because of poor site preparation.

Less commonly, the abscesses that are seen at IM injection sites are sterile abscesses. These are nodules of liquefied fat and muscle resulting from necrosis of the involved tissues. Their development has been blamed on a hypersensitivity to the injected medication. This reaction is manifested by local tissue necrosis and liquefaction with a surrounding area of intense inflammation [3,4].

The literature is scanty in describing the imaging features of sterile gluteal abscesses. Only two cases of sterile gluteal abscesses secondary to IM injections has been described in literature. Both patients received intramuscular injection of medication mixed with oil suspension; penicillin in an emulsifying vehicle of sesame oil in one patient [5] and vasopressin suspension with peanut oil in other patient [6]. Only one of these cases describes CT findings. This case, which was secondary to Vasopressin tannate injection in suspension with peanut oil, diagnosed two year after the injection with fat-fluid level and calcified rims on the CT scan [6]. In our case, the sterile gluteal abscesses were seen after few days of injections as masses of fluid density with faint ill defined enhancing margins in gluteal maximus muscles. These resolved with conservative treatment.

In summery, we describe CT imaging features of gluteal sterile abscesses secondary to IM injections of penicillin. Due to the unique anatomy of the gluteal region, it is difficult from physical examination to access gluteal abscesses. CT may play an important role in identifying it and may obviate unnecessary intervention.

References
Author Information

Silanath Peungjesada, MD
Radiology Service, Dallas VA Medical Center VA North Texas health care system 4500, South Lancaster Road Dallas, TX 75216

Pramod Gupta, MD
Radiology Service, Dallas VA Medical Center VA North Texas health care system 4500, South Lancaster Road Dallas, TX 75216

Gregg D. Rice, MD
Radiology Service, Dallas VA Medical Center VA North Texas health care system 4500, South Lancaster Road Dallas, TX 75216

Vidisha Ghole, MD
Radiology Service, Dallas VA Medical Center VA North Texas health care system 4500, South Lancaster Road Dallas, TX 75216

Manoj Ketkar, MD
Radiology Service, Dallas VA Medical Center VA North Texas health care system 4500, South Lancaster Road Dallas, TX 75216