International Clinical and Medical Case Reports Journal
Case Report

# A Child with Persistent Gluteal Swelling

**Sarah Harris-Kober[1*], Tabatha Alrayes[1], Sheena Saleem[2], James W Davis[3], Nirupama Kannikeswaran[1]**

[1]Department of Pediatrics, Division of Emergency Medicine, Children's Hospital of Michigan, USA

[2]Pediatric Radiology Fellowship Program Director, Wayne State University School of Medicine, USA

[3]Division of Radiology, Children's Hospital of Michigan, Wayne State University School of Medicine, USA

**Citation:** *Sarah Harris-Kober, Tabatha Alrayes, Sheena Saleem, James W Davis, Nirupama Kannikeswaran. A Child with Persistent Gluteal Swelling. Int Clinc Med Case Rep Jour. 2022;1(2):1-6.*

**Received Date:** 16 June, 2022; **Accepted Date:** 23 June, 2022; **Published Date:** 25 June, 2022

[*]**Corresponding author:** Sarah Harris-Kober. Department of Pediatrics, Division of Emergency Medicine, Children's Hospital of Michigan, USA



## ABSTRACT

Skin and soft tissue infections are an increasingly common reason for visits to the Emergency Department (ED) in children. A 6 year old female presented to the ED with concern for persistent right gluteal swelling which was resistant to treatment with two courses of antibiotics and Incision and Drainage (I&D). The patient was ultimately diagnosed with an alveolar rhabdomyosarcoma *via* lymph node biopsy. Soft tissue malignancy is an uncommon differential to consider in children presenting with cellulitis.

Rhabdomyosarcoma is the most common soft tissue malignancy in children, and presents similarly to a soft tissue infection with the only differentiating characteristics including persistent unresponsive symptoms and lack of purulent drainage with I&D. Clinicians should have a high index of suspicion for malignancy while evaluating children with soft tissue infection unresponsive to common treatment modalities.

**Keywords:** Gluteal Swelling; Skin; Lymph node

## INTRODUCTION

Skin and Soft Tissue Infections (SSTIs) are a common Emergency Department (ED) presentation, accounting for over 3 million visits annually in the United States.[1] While antibiotics are recommended for treatment of cellulitis, Incision and Drainage (I&D) and/or antibiotics pending wound culture results with susceptibility are recommended for treatment of an abscess.[1-3] Majority of abscesses resolve with I&D alone, and this remains the gold standard treatment.[3] We discuss a patient who presented with persistent gluteal swelling, initially treated as a cellulitis and an abscess, and later diagnosed with an alveolar rhabdomyosarcoma.

## CASE DESCRIPTION/NARRATIVE

A 6 year old female with left ear microtia, congenital aural atresia, and resultant left ear deafness presented to the ED for persistent right gluteal and thigh swelling. The patient was initially evaluated by her primary care pediatrician one month prior for swelling of the right gluteal region and was prescribed a 10 day course of Amoxicillin for presumed cellulitis. Given a lack of improvement in the swelling and worsening erythema despite completion of antibiotics, the child presented to our pediatric ED. A bedside ultrasound performed at that time was consistent with an abscess and surrounding cellulitis. An I&D was performed, but no purulent drainage was appreciated. The patient was admitted to the pediatric infectious disease service for observation and discharged home on oral clindamycin. One week later, mother noticed persistent swelling to the right gluteal region with new pain and swelling to the right thigh. This prompted a return ED visit. There was no history of fever, difficulty voiding or stooling, weight loss, fatigue, night sweats, easy bruisability or bleeding, or limp. Physical examination was significant for an ill-defined erythematous, indurated, non-fluctuant and non-tender 5 cm by 4 cm swelling in the right gluteal region. There was mild swelling of her right proximal thigh with discoloration and an enlarged, non-tender right inguinal lymph node. Bilateral lower extremities were neurovascularly intact.

Complete blood count, comprehensive metabolic panel, inflammatory markers and coagulation studies were unremarkable except for a mildly elevated D-dimer of 1.22. A right lower extremity ultrasound demonstrated a 5 cm by 5.8 cm by 4.5 cm area of gluteal cellulitis with abscess in addition to multiple enlarged necrotic lymph nodes in the right inguinal region (Figure1) Duplex study of the right lower extremity demonstrated a thrombus in the superficial saphenous and deep femoral vein. A Magnetic Resonance Imaging (MRI) of the abdomen and pelvis performed secondary to persistent swelling resistant to antibiotic therapy and lack of systemic symptoms, revealed a large enhancing infiltrating mass involving the right perirectal gluteal soft tissues with extension to abdomen, pelvis, right iliac and inguinal region (Figure 2). Subsequent lymph node biopsy confirmed the diagnosis of an alveolar rhabdomyosarcoma, and additional imaging confirmed metastatic disease.

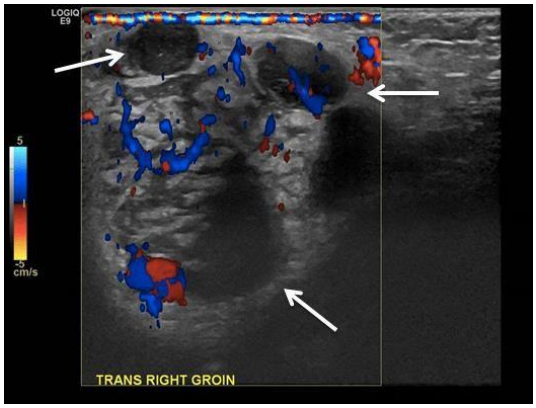


**Figure 1:** Ultrasound image demonstrating cellulitis with lymph nodes (marked) demonstrating minimal hilar flow within. This is suggestive of necrosis or early necrotic changes.

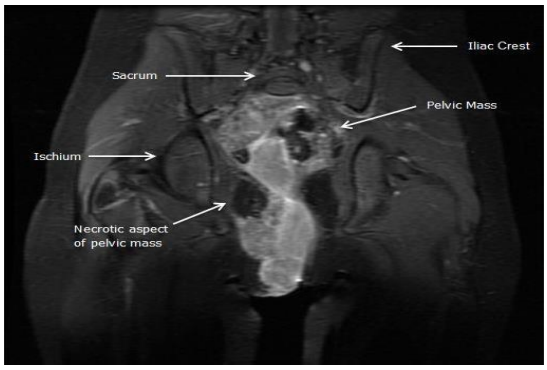


**Figure 2:** Coronal, post contrast MRI image demonstrating enhancing mass extending from the rightperineal region into the pelvis superiorly.

## DISCUSSION

The incidence of SSTIs has increased significantly during the last couple decades, with a 3- fold increase secondary to increasing incidence of Methicillin Resistant Staphylococcus Aureus (MRSA) infections.[1,4,5] Fritz, et al reported that while the overall visits for purulent SSTIs in children to the primary care physician's offices have decreased, the annual ED visit rate for such infections remained steady with 13% requiring hospitalizations and one fifth undergoing I&D.[6] SSTIs can be simple or complicated depending on the extent of deep tissue involvement with the latter being more common in patients with underlying risk factors such as extremes of age, those with chronic medical conditions such as diabetes mellitus impaired immune responses, intravenous drug users and animal/human bites.[7]

Recurrent cases are common, occurring in approximately 14% of patients within 1 year, and typically recurrence is in the same location.[8] SSTIs typically respond to antibiotics and I&D within a few days to a week. Lack of response to therapy could be secondary to resistant microbial organisms or due to non infectious causes. Non infectious conditions mimicking cellulitis include superficial thrombophlebitis, deep venous thrombosis, stasis dermatitis, insect bites, cutaneous vasculitis, drug reactions and gout.[9]

Soft tissue neoplasm is a rare differential diagnosis for SSTI. Rhabdomyosarcoma, the most common soft tissue neoplasm in children, accounts for only 3% of pediatric tumors.[10,11] Usually it involves the head, neck, extremities, and genitourinary tract and perineal/perianal location (2%) is uncommon.[12]

Diagnosis is a challenge, as there is considerable clinical overlap in presenting symptoms between infectious and neoplastic soft tissue lesions. The only clinical differences are protracted symptoms and lack of purulent drainage on I&D.[13] Hill et al (ref) reported that the mean duration of pathologic diagnosis from presentation was 2.1 months.[13]

Complete blood count and serum markers are not useful in diagnosis of rhabdomyosarcoma. Ultrasound imaging is not helpful in distinguishing between SSTIs and neoplasm. MRI is useful in not only helping with the distinction between the two entities but also in determining the extent of involvement. The most important diagnostic tool is tissue sampling for biopsy which also provides a histological diagnosis (embryonal or alveolar). Alveolar histology is less

common and has a higher propensity to metastasize. Poor prognostic factors include unfavorable primary location (gluteal region), diffuse metastasis at time of diagnosis, large size (>5cm), and alveolar histology.[10,12,14]

Patients presenting to the ED with persistent SSTI despite adequate treatment should be considered for alternate diagnoses including soft tissue neoplasm, especially if lack of purulent drainage is noted on I&D.

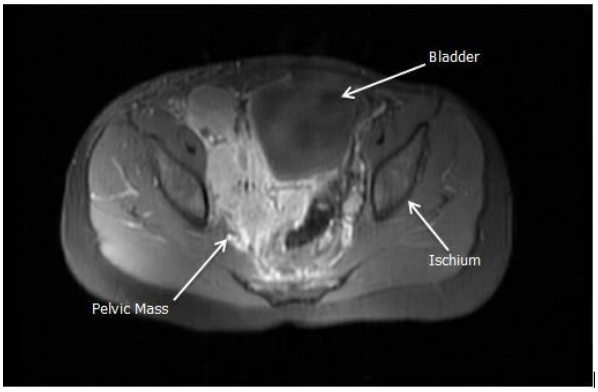


**Figure 3:** Axial, post contrast MRI image demonstrating enhancing pelvic mass.

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