Psoas Abscess, Bilateral Pyelonephritis with Staphylococcus Aureus Infections

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Abstract- We are herewith submitting a case report of left psoas abscess bilateral pyelonephritis with septic emboli in lungs, spleen and right atrium with osteomyelitis of left femur with staphalococcus aureus infection in a 14 years old lean boy without significant pre disposing factors.He was presented with high grade fever with erythematous rash and swelling of hip joint with pain. Pus culture was positive for staphylococcus aureus and sensitive to antibiotcs linezolid,ofoxacin and vancomycin. Patient was improved with surgical drainage of psoas abscess and 4 weeks of antibiotic therapy.

Index Terms- Bilateral pyelonephritis, Psoas Abscess, Staphylococcus aureus infection.

I. INTRODUCTION

Psoas abscesses may arise from a hematogenous source, by contiguous spread from an intra abdominal or pelvic process, or by contiguous spread from nearby bony structures (eg., vertebral bodies). Associated osteomyelitis due to spread from bone to muscle or from muscle to bone is common is psoas abscesses. When Pott's disease was common, Mycobacterium tuberculosis was a frequent cause of psoas abscess. Currently, either S. aureus or a mixture of enteric organisms including aerobic and anaerobic gram – negative bacilli is usually isolated from psoas abscesses in the United States. S. Aureus is most likely to be isolated when a psoas abscess arises from hematogenous spread or a contiguous focus of osteomyelitis a mixed enteric flora is the most likely etiology when the abscess has an intra-abdominal or pelvic source. Patients with psoas abscesses frequently present with fever, lower abdominal or back pain, or pain referred to the hip or knee. CT is the most useful diagnostic technique[1]

A case report

A 14 year non diabetic male boy presented with complaints of high grade fever with chills, rash all over the body, pain in the lower abdomen, left hip and burning micturition of 1 week duration.

On examination patient conscious coherent erythematous macular rash all over the body with swelling and tenderness in the left thigh, and unable to flex left hip.

Past History

No history suggestive of Diabetes, HIV, Drug abuse, prolonged hospitalization or trauma.

General Examination

Temp - 102^0 F ; Pulse - 120/mt regular ; Respiratory Rate - 22/min; No cyanosis; no lymphadenopathy; no clubbing ; no pedal edema ; per abdomen examination - tenderness over the left iliac region and lumbar region . Swelling and Tenderness of left thigh present; no organomegaly ; no free fluid in the abdomen. Patient was not able to flex left thigh.

Investigations

CUE – sugar nil ; albumin Trace ; pus cells – 6 – 8 / hpf + ; CBP – Hb – 12 gm/dL ; WBC count – 11,000 cells / cumm ; Neutrophils – 68% ; lymphocytes – 27% ; monocytes 03% ; Eosinophils – 02% ; Basophils – 0 % ; ESR – 25 mm 1^{st}hr; platelets adequate – RBS – 120 mg/dL ; serum urea – 24 mg/dL ; Sr. Creatinine – 0.6 mg./dl ; Sr. electrolytes – 123 meq/L ; Sr. Potassium– 3.2 meq/L ; Sr. Bilirubin – 0.9 ; Glycosylated Hemoglobin – 5.7% ; ASO - < 200 IU/ML ; Dengue – negative ;Mantoux – negative; ECG – Normal sinus rhythm; Heart Rate – 130/mt sinus tachycardia; HIV – Non reactive;X-ray Chest – Normal; X ray Left Hip – Acute Osteomyelitis left Femur; Pus Culture & Sensitivity – Stophylococcus aureus organisms isolated; Urine Culture – No organisms grown; **Ultrasound Abdomen**–Liver – Normal; Rt Kidney – 12.7 x 7 cms enlarged increased echogenicity dilated pelvis with echogenic focus noted. Lt Kidney –12.3 x 6.8 cms increased echogencity with dilated pelvis; **Impression** – Bilateral Pyelonephritis. ; **Ultrasound Hip –Ill**, defined hyperechoic lesion noted in the iliopsoas extending into posterior and anterior compartment of upper 1/3 of thigh; **Impression** – Abscess in the iliopsoas with downward extension ; **CT Scan Abdomen with IV Contrast**– Lungs showing multiple thick walled cavitory lesions in basal segments of both lobes, cavitating infarcts suggestive of septic emboli. Small well defined sub-capsular non enhancing wedge shaped hypodensity suggestive of infarct. Large ill-defined hypodense lesion in the left ilioloops- suggestive of abscess. Extending below in the intermuscular plane involving the anterolateral muscle compartment of thigh; **Impression**–left iliopsoas abscess extending into anterolateral compartment of thigh and around left hip joint with septic emboli and infarcts in the left lungs and spleen ; pus culture sensitive to amoxyclav ; Vancomycin ; Linezoid&Oflaxacin. X ray Chest - Normal ; 2D Echo – prominent eutachian valve, Echogenic focus at RA & IVC junction ,Good LV/RV function. Repeat 2 D Echo after4 weeks

of antibiotic therapy vegetation's disappeared.venous doppler study - normal.

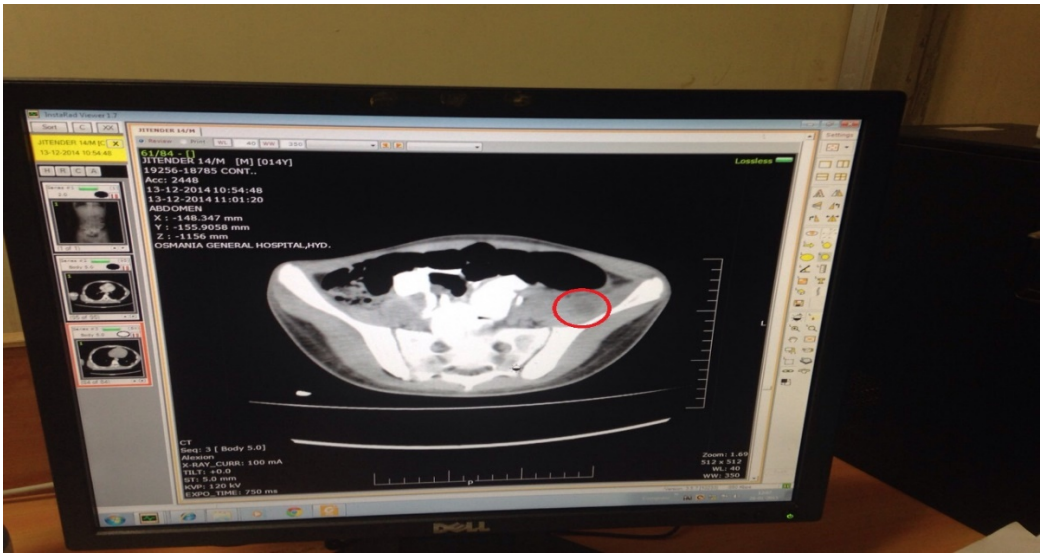
Diagnosis

Left psoas abscess, bilateral pyelonephritis with septic emboli in lungs, spleen and right atrium with osteomyelitis of left femur with staphylococcus aureus infection.

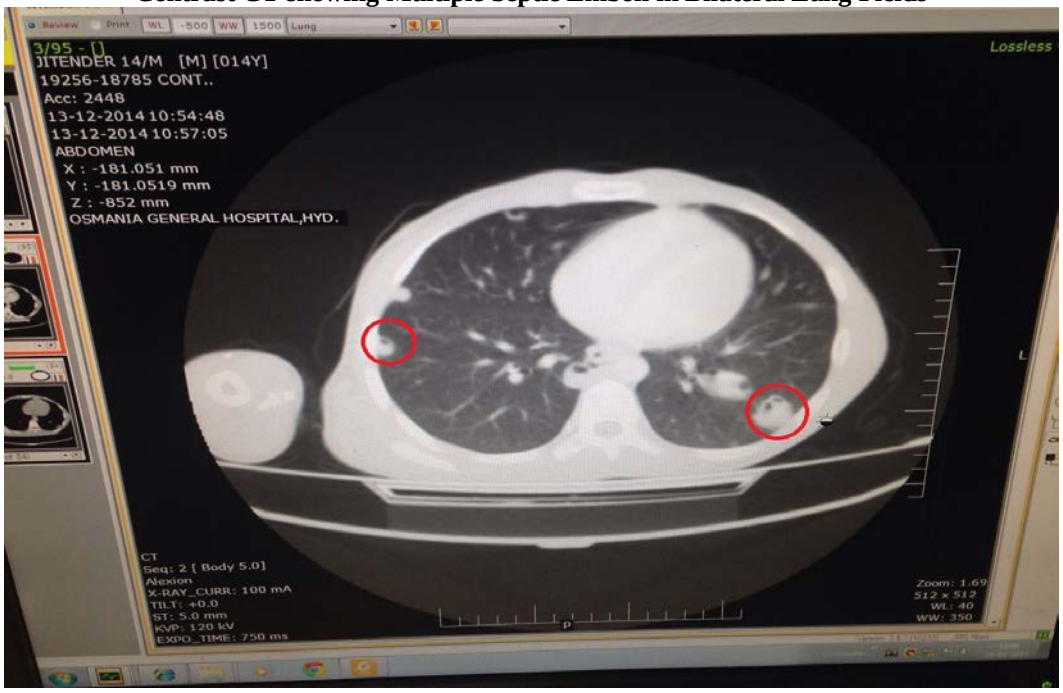
Treatment

Patient underwent surgical drainage of Psoas abscess and kept on antibiotic; IV Ofloxacin followed by Linozilid for 4 weeks; Patient general condition improved rash fever subsided and advised skin traction for left leg by Orthopedician and Discharged.

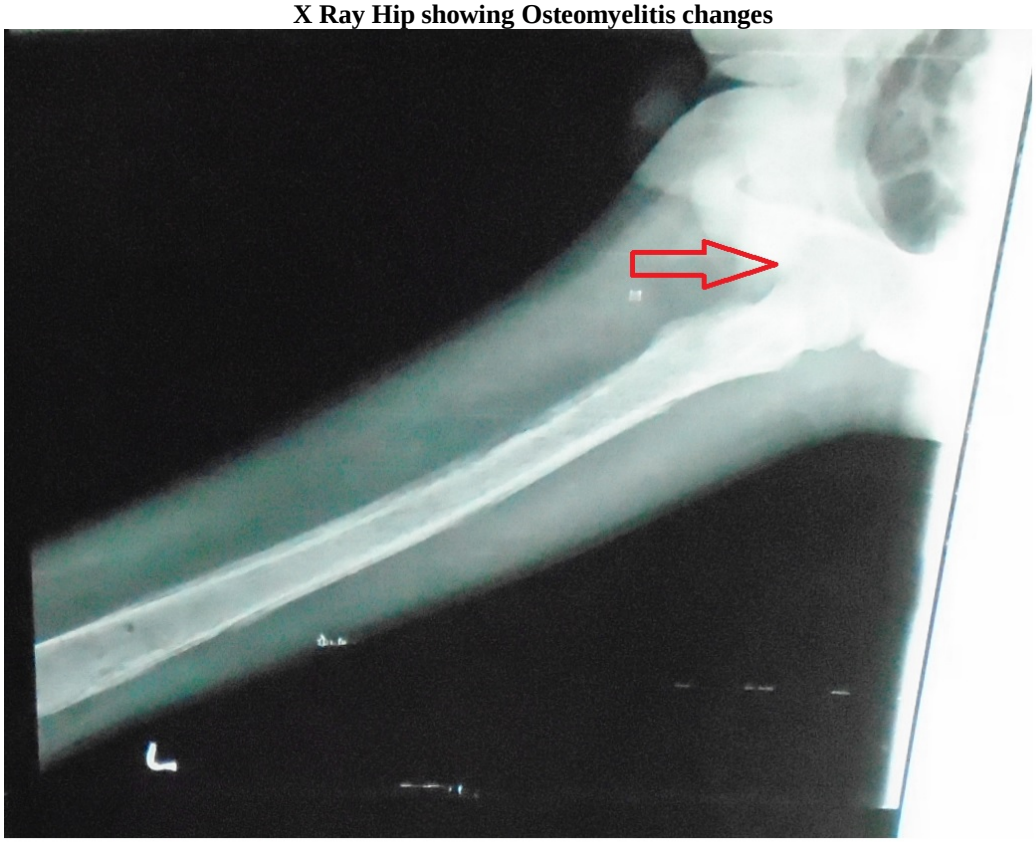
Contrast CT with Left Psoas abscess



Contrast CT showing Multiple Septic Emboli in Bilateral Lung Fields



X Ray Hip showing Osteomyelitis changes



II. Discussion

Association between cluster – forming cocci and abscesses was first observed by a Scottish surgeon, Alexander Ogston. He coined the name Staphylococcus' for the organism (Staphyle, bunch of grapes ;kokkos berry) to distinguish it from Chain forming Streptococci. More than 30 species of Staphylococci can infect humans. However, most infections are caused by Staphylococcus aureus, the most virulent species and an important cause of morbidity and mortality in humans. It is distinguishable from other Staphylococci by its ability to produce coagulase, an enzyme that converts fibrinogen to fibrin. The other less virulent species of Staphylococci are grouped together as coagulase negative Staphylococci (CoNS).

Staphylococcus Aureus infections

S. Aureus forms part of normal human flora, colonizing the anterior nares, axilla, perineum, oropharynx, and vagina and toe webs. 25% to 50% of healthy persons may be carriers and this is relevant to the epidemiology, as source of most infections is endogenous. Factors predisposing to S. aureus colonization are shown.

Factors predisposing to S. aureus Colonisation

Insulin – dependent diabetes, HIV infection, IV drug abuse, Chronic haemodialysis patients, Skin diseases, e.g. eczema, S. aureus has a capacity to induce abscess formation.

S. aureus usually caused localized infections resulting in abscess formation. However, bacteremia and haematogenous spread may occur, the severity of which is determined by the host response.

Common illness Caused by Staphylococcus Aureus - Skin and soft tissue infections, Folliculitis, Furuncle, carbuncle, Musculoskeletal infections- Septic arthritis, Osteomyelitis, Pyomyositis, Psoas abscess, Respiratory tract infections - Septic pulmonary emboli, Empyema, ,Bacteremia and its complications - Sepsis, septic shock, Metastatic foci of infection (kidney, joints, bone, lung),Infective endocarditis, Toxin Mediated illness, Staphylococcal scalded – skin syndrome

Iliopsoas abscess is a relatively uncommon condition that can present with vague clinical features. Its insidious onset and occult characteristics can cause diagnostic delays, resulting in high mortality and morbidity[2]

The Iliopsoas compartment is an anatomic space composed of the psoas major, psoas minor, and iliacus muscles, which mediate hip flexion and are inervated by L2-4.

Iliopsoas abscess may be classified as primary or secondary, depending on the presence or absence of underlying disease. Primary iliopsoas abscess occurs probably as a result of haematogenous spread of an infectious process from an occult source in the body. The group of patients in which primary iliopsoas abscess occurs diabetes, HIV, IV drug abuse, immunosuppression. Crohn's disease is the commonest cause of secondary iliopsoas abscess[3].

Iliopsoas abscess is a collection of pus in the iliopsoas compartment. Iliopsoas abscess was first described by Mynter in 1881 who referred to this as psoitis[4].http://pmj.bmj.com/content/80/946/459.full - ref-1

Staphylococcus aureus is the causative organism in over 88% of patients with primary iliopsoas abscess.[4]http://pmj.bmj.com/content/80/946/459.full - ref-8Secondary iliopsoas abscess is caused by streptococcus species 4.9% and *E coli*2.8%.[5]http://pmj.bmj.com/content/80/946/459.full - ref-8—*Mycobacterium tuberculosis* as a cause of iliopsoas abscess is currently uncommon in the western world, but common in the developing countries. Iliopsoas abscess is common in the young compared with the elderly[6.] It is reported to be commoner in males than females.[7]

Eustachian Valve

The ostium of the inferior vena cava is guarded by a crescent shaped, often fenestrated flap of tissue, the Eustachian valve, which is readily seen by echocardiography. Although generally small the Eustachian valve can become so large that it can produce a double chambered right atrium[8] it is coincidental finding in this case.

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