

GRANULICATELLA ADIACENS- A RARE CAUSE OF POST-OPERATIVE MYO-CUTANEOUS ABSCESS WITH SINUS TRACT FORMATION.

Medical Microbiology

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ABSTRACT

Granulicatella adiacens is a fastidious gram-positive coccus that occurs in pairs or chains; it is a part of nutritionally variant streptococci. It usually causes bacteraemia and infective endocarditis. Up until now, it was not implicated as a cause of many infections because of its fastidious nature, but recently, due to the use of automated culture systems and commercial mediums, its role in causing various infections has been unmasked. Rarely, researchers have identified it as the cause of abscess in immunocompetent humans.

KEYWORDS

INTRODUCTION:

Granulicatella species and the genus Abiotrophia were previously known as 'nutritionally variant streptococci'. They are a natural component of the oral flora, but have been linked to several invasive illnesses in humans, most notably bacterial endocarditis. [1] Granulicatella adiacens is a nutritionally variable streptococcus (NVS) that must be isolated in the laboratory using standard medium with pyridoxal or other supplementary agents.[2]

There are very few reports of localized pyogenic infections, and most of them are in patients with underlying pathology like diabetes or other systemic illnesses. Other infections caused by this species include post-instrumentation meningitis, infections of breast implants, and of peritoneal dialysis related peritonitis.[3] Granulicatella organisms have varying penicillin sensitivities due to weak cell walls, and treatment failures can occur even with penicillin sensitivity due to innate penicillin tolerance. Among NVS, G. elegans are more sensitive to penicillin than G. adiacens or Abiotrophia species, having MICs <0.125 mg/L. [4]

Poor familiarity of Surgeons and microbiologists toward this infectious agent poses diagnostic and treatment challenges. Treatment of Granulicatella adiacens abscess is mainly surgical drainage with debridement and wound wash under appropriate antibiotic cover. Here we are presenting the case of a patient with multiple post operative myo-cutaneous abscess in left thigh from which Granulicatella adiacens was isolated.

CASE REPORT:

History And Physical Examination:

A 39-year-old male with no pre-existing comorbidities presented to the emergency department of the hospital with complaints of pain and redness over left thigh accompanied with swelling and discharge of yellow pus like fluid from 3 openings over skin of left thigh since last 7 days. Patient was also not able to bear weight on left lower limb since last 4 days.

On further history taking, it was revealed that the patient had met with a road traffic accident 2-wheeler vs 2-wheeler 18 days back where had penetrating injury with multiple abrasions over left thigh and left forearm. The penetrating injury to left thigh was grossly contaminated for which he underwent debridement and wound wash over the affected area at an outside hospital following which the wound was sutured and the patient was discharged on oral antibiotics after removal of drain.

The patient then gradually developed pain which was insidious in onset, showed no diurnal variation, throbbing in nature, increased by movement, and decreased partially by rest and medication. The pain was associated with redness of surrounding skin with swelling of left thigh. The swelling and redness were concurrent with development of

multiple discharging sinuses over the left thigh.

General Examination:

On presentation, patient was vitally stable, oriented to time, place, and person. Patient was well built, well nourished had normal bowel/bladder movements and disturbed sleep due to pain. Patient had no pre-existing comorbidities like Diabetes mellitus, tuberculosis, hypertension, glaucoma, peripheral vascular disease. Patient had history of addiction to Tobacco, Nicotine, and occasional Cannabis in the past 20 years.

Local Examination Of Left Thigh:

INSPECTION:

The left thigh was in its normal attitude, Range of motion was limited due to pain.

As seen in Figure 1, A 15 cm * 3 cm long previous scar mark with three distinct openings of sinus tract were present with active discharge of thick, yellow pus oozing from all three of them. A healed abrasion was present over the knee joint which measured around 5 cm * 5 cm.



Figure 1- Inspection Of Left Thigh.

Erythema and swelling around the previous surgical site were present.

PALPATION:

The left thigh had tenderness, local rise in temperature over affected region.

Reduction in Range of motion was confirmed on palpation, the swelling was diffuse, indurated, and non-fluctuant. Wound tunnelling and undermining for sinus tract were confirmed on examination. No pulsation or transillumination were appreciated.

INVESTIGATIONS:

Appropriate blood work along with culture sample in form of soaked swab and a sterile container filled with pus expressed from sinus tract

were sent to appropriate labs for workup.

The Complete blood count showed a haemoglobin level of 10.7 gm/dl, with a total WBC count of 11000/mm³ (with 72% Neutrophils) and a platelet count of 250,000/mm³, which were clearly suggestive of an acute infective aetiology. The coagulation profile, renal function, liver function and serum electrolytes were all normal.

Radiological Investigation:

The patient underwent MRI of left thigh which was suggestive of some well-defined pockets (some ill-defined) of collection noted in the myo-cutaneous plane anterolaterally over the thigh, seen extending from the visualized hip joint level up to the knee joint level. There were associated inflammatory changes in the vastus lateralis muscle and subcutaneous plane.

Femur had normal morphology and marrow signal. Rest of the muscles of thigh appear normal. Neurovascular bundle seemed intact. Above findings as seen in Figure 2 and 3.



Figure 2- MRI Left Thigh

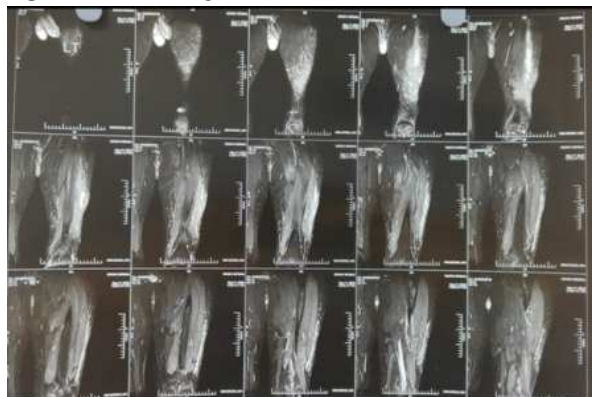


Figure 3- MRI Left Thigh

MICROBIOLOGICAL INVESTIGATION:

Pus grew minute colonies on sheep blood agar after 48 hours, which were gram-positive cocci in small chains, catalase-negative, and subsequently identified as *Granulicatella adiacens* using the VITEK2 system (bioMérieux, France) using Gram positive (GP) identification card with 98% probability index. Antibiotic sensitivity testing was done and the bacteria was found to be sensitive to ampicillin, clindamycin, ceftriaxone, penicillin, vancomycin, meropenem and levofloxacin. The bacteria were resistant to erythromycin.

MANAGEMENT:

The patient was managed with repeat debridement and wound wash with drainage of abscess and excision of sinus tract. This operation was done under antibiotic cover of IV cefuroxime, however, after obtaining culture reports the antibiotic was changed to IV Ceftriaxone. Regular aseptic dressing of the surgical site was done for 3 days after which the drain which was placed intra-op was removed and patient discharged on oral levofloxacin. The patient was followed up in OPD at weekly intervals for 2 weeks during which his symptoms had resolved and later suture removal was done.

DISCUSSION:

Granulicatella adiacens has been known to cause septic arthritis [5], discitis [6], dacryocystitis [7], osteomyelitis [8], prosthetic joint infections [9], suprapatellar abscess however, none of these cases have been associated with sinus tract formation. To the best of our knowledge this is the first case of *Granulicatella adiacens* being implicated as a cause of surgical site infection with actively draining sinus formation.

Commercial medium already contains pyridoxal and support growth of NVS, thus in recent times reporting of this bacterium has increased. However, to confirm its diagnosis most of the laboratory require use of VITEK2 system. Thus, clinicians should be aware of the potential of such organisms to cause surgical site infection. Surgeons should maintain a high level of suspicion while dealing with post operative infections. It is important for the bacteriology department of all hospitals to be aware of the same, as difficulty in identifying this organism can lead to delay in diagnosis and lead to poor patient related outcomes.

CONCLUSION:

Newer bacteria are being identified which can cause surgical site infection on regular basis. A surgeon should make sure to take necessary measures before and after operating on a patient to avoid such rare infections. Nutrition variant streptococci form a group of under-reported cause of surgical site infection and further study in their antibiotic sensitivity pattern is needed.

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