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RESEARCH ARTICLE

POLYMICROBIALOBLIGATE ANAEROBIC INFECTION IN CHRONIC SUPPURATIVEHIDRADENITIS-A CASE REPORT

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ABSTRACT

Chronic Suppurative Hidradenitis is an apocrine glands inflammation present in the skin adnexa over theaxillary, anogenital and perineal region. It occurs due to obstruction and inflammation of the draining duct with sinus formation .Obligate anaerobes contribute to mixed skin flora and they are known to causepolymicrobial synergistic infection along with facultative anaerobes. Obligateanaerobes usually cause deep seated necrotic infection with foul smelling discharge. Here is a case of an unmarried women presenting with a lump in the breast with a foul smelling discharge since 2 years. A final diagnosis of Chronic suppurativehidradenitis was made and treated with localised surgical excision and antibiotics. An aspirated pus was sent for aerobic and anaerobic culture which revealed polymicrobial obligate anaerobic infection due to *Peptostreptococcusspp, Fusobacteriumspp, Prevotellamelaninogenica* and *Eubacteriumspp grown* in synergism with aerobic *Pseudomonas aeruginosa*. Patient recovered and no recurrence has been seen as of now. Hence it is an unusual case of chronic suppurativehidradenitis with superficial degenerative infection caused by Polymicrobial obligate anaerobes.

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INTRODUCTION

Suppurativehidradenitis of an apocrine sweat gland ,usually of the axillary, inguinal, anogenital and perianal regions are affected by an obstructive inflammatory and scarring process. The process can become chronic with draining sinus tracts, thick scars and systemic symptoms can ensue (Schimpff, 1980). Anaerobes are themajor contributors to the normal flora of skin and mucous membranes. Additionally these organisms are implicated as major pathogens in recurrent abscesses associated with sub areolar breast ducts, with abscesses and hidradenitissuppurative of the axillary and perineal apocrine glands (Lancet, 1980). Non puerperal breast infection is a mixed infection with a major anaerobic component. The role of Staphylococcus aureus is limited exclusively to acute infections since this organisms is rarely isolated from those with chronic infection. Anaerobes are the major microbial population in both acute and chronic patients. However in the chronic population the anaerobic bacteria out number the facultative population by 2 to 1. In chronic patients the predominant microbial population included the Coagulase Negative Staphylococci, *Bacteroidesspp, Propionibacteriaspp and Peptostreptococcispp*. Anaerobic streptococci were by far the major microbial population (Edmiston, 1990). Here we report a similar case of Chronic suppurativehidradenitis of right axilla due to polymicrobial obligate anaerobic infection.

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Case Report

A 24 yr old unmarried female presented to the surgical OPD of St John's hospital with alump in the right breast. It was present at 3 o clock position on the medial aspect of the right breast since two yearsandassociated with a foul smelling discharge since 2 months. There was no history of associated fever, pain and no history of recurrence. On local examination, there was a hyperpigmented swelling present on the medial aspect of the right breast measuring 3x2cms approx. A sinus measuring 0.5x0.5 cms with the foul smelling discharge was also noticed. There were no other signs of inflammation. Other Investigations, blood parameters were within the normal range. Ultrasonography was done which revealed a central hypoechoic and peripheral hyperechoic lesion with an external sinus leading into a sinus tract that reached the central hypoechoic region with collection of pockets of air measuring <1 cc, radiologically suspectingantibioma or boil with sinus formation probably due to anaerobic infection. Surgical intervention was done and the excised lump was sent for histopathological examination which grossly showed a nodular mass of 2.1x2. cms with areas of cystic degeneration and a pus

draining defect of 0.8x0.8cms. Microscopy revealed the dermis showing group of cells arranged in lobules and clusters with occasional papillary fonds. These cells were with round to oval pale nuclei with prominent nucleoli and moderate eosinophilic granular cytoplasm. Areas of degeneration with microbial colonies were noted. No evidence of atypia /mitotic activity noted suggestive of Benignadnexal Hidroadenoma with microbial colonies.

Fig 1a-Gross specimen of Fibroadipose tissue measuring 4.6 X 4.5X 2.6 cms

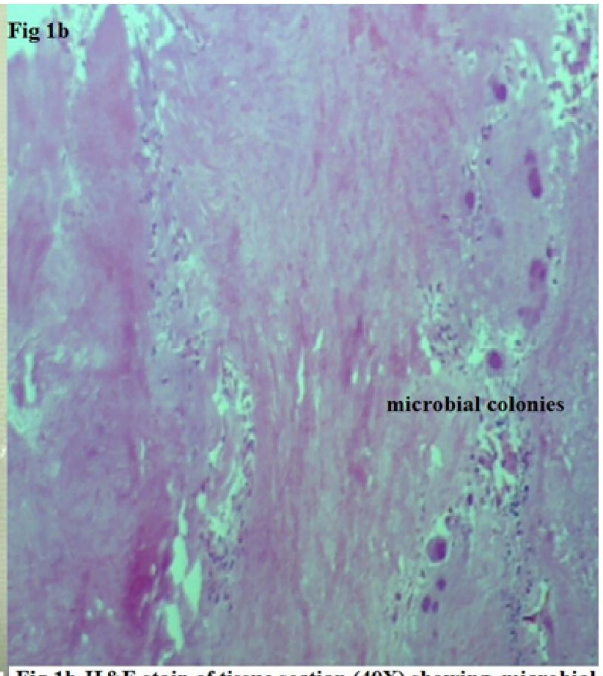

Fig 1b-H&E stain of tissue section (40X) showing microbial colonies

Microbiological aerobic and anaerobic culture was done for the foul smelling discharge aspirated during the surgical excision which on gram stain revealed occasional pus cells with polymicrobial fine gpcs and gnbs of variable sizes presumptively suggesting polymicrobial infection with obligate anaerobes. Aerobic culture yielded the growth of *Pseudomonas aeruginosa* which was sensitive to all the antipseudomonal drugs like Piperacillin, ciprofloxacin, Piperacillin+tazobactam, carbapenems etc. Anaerobic culture revealed multiple morphologically different colonies and black pigmented colonies with characteristic fetid odour. Further identification was done and the obligate anaerobes like *Peptostreptococcusspp, fusobacteriumspp, Eubacteriumspp and Prevotellamelaninogenica* were identified. All their susceptibility pattern performed following a standard protocol showed susceptibility to all the commonly used anti anaerobic drugs iePencillin (10IU), Chloramphenical (30 µ gm), Erythromycin (15 µgm), Metronidazole (5 µ g) and clindamycin (2 µ gm) (Sutter *et al.,* 1980).

DISCUSSION

Chronic suppurative Hidradenitis is a very difficult problem. The disease is very uncomfortable and socially unacceptable due to foul smelling discharge and in chronic cases systemic manifestation may develop. Similar cases has been reported by Stefen *et al* where in a 37 yr old woman presented with a draining sinus from right axilla with complaints of recurrence which aerobically showed the growth of *Staphylococcus aureus* and *Staphylococcus epidermidis*. Anerobic culture were obtained from the deep needle aspiration within the sinus tracts which revealed the growth of *Bacteroidesfragilis* and *P.melaninogenica.*Since the patient refused to undergo surgery, an intensive therapy with intravenous clindamycin was given (Schimpff, 1980).

Another case presented with the history of Hidradenitissuppuativa since 5 years which extensively affected groin and both axilla. The lesion drained foul smelling purulent material through numerous sinus tracts (Brook 1985). Initial aerobic culture of the purulent fluid contained heavy concentration of *Staphylococcal epidermidis* and Beta haemolytic streptococci. Anaerobic culture obtained by fine needle aspiration from the axilla revealed moderate to heavy growth of *Bacteroides fragilis* and *Bacteroides. melaninigenica* and the same were isolated from the groin regionalso. Intravenous clindamycin was given and patient improved over 24 days. But again by 2 years patient came with the history of recurrence and presented with increased drainage from groin region and again culture yielded anaerobic bacteria like *B. fragilis* and *B, melaninogenica* suggesting persistent recurrent obligate anaerobic infection (Schimpff, 1980). In our case it was a hyperpigmented lesion with secondary obligate anaerobic infection. It is a very rare case of solitary superficial chronic hidradenitis with undergoing degeneration associated with the polymicrobial obligate anaerobes. This resulted into a sinus formation with afoul smelling discharge. Lesion was treated locally by surgical excision and with antibiotics which covered both aerobic and anaerobic bacteria. Patient recovered completely and there is no history of recurrence till now.

In our case report the infectious site possess a synergistic activity with the aerobic and anaerobic bacteria leading to

polymicrobial infection. Many studies have shown that this kind of polymicrobial aerobic and anaerobic infections are known to be more pathogenic for selected experimental infection than infections involving a single pathogen (Brook *et al*., 1984). In a study conducted by walker *et al*. who found that the non puerperal breast infection are mixed infection with a major anaerobic component and *Peptostreptococcus spp* represent the single largest group of the isolates recovered. *Staphylococcus spp* and *Propionibacterium spp* are the common skin commensals and may directly contaminate breast duct epithelium, but may not be the primary pathogens in non puerperal breast infection **(**Walker *et al*., 1988**)**. Such microbial synergy may be due to protection from phagocytosis and intracellular killing,production of essential microbial growth factors and lowering of the oxidation reduction potential in host tissue. The apocrine apparatus in the areolar tissue may provide appropriate atmosphere for anaerobic bacterial or mixed infection (Ingham, 1977 and Lev, 1971).

Common obligate anaerobes isolated in our case were *Eubacteriumspp, Fusobacterium spp, Peptostreptococcus spp*, and *Prevotellamelaninogenica*. This microbial flora almost mimics that of the oral anaerobic microbial flora.But the means by which these bacteria reached the apocrine glands of the breast adnexal tissue is not known. This case emphasis the importance of aerobe as well as anaerobic culture techniques in chronic suppurative skin lesions. Mixed aerobic/anaerobic bacteria must be borne in mind as causative agents of recurrent skin abscesses or subcutaneous infection. Hence it is a rare case report of anskin adnexal Hidradenitis with a secondary polymicrobial obligate anaerobic infection. A study done by Pigott H, 6 of 9 patients suffering from Hidradenitissuppurativa had undergone treatment by surgical excision and the etiology, diagnosis with the treatment by using antibiotics were documented. This study describes 9 patients suffering from the condition of whom 8 were incorrectly diagnosed with subsequent delay in surgical cure. Most of the reports of Hidradenitissuppurativa emphasizes the delay in reaching the diagnosis.

Most of the patients in their study received repeated courses of systemic antibiotics, local application and the use of bactericidal soaps without any benefits. However the diagnosis may be obscured under many other names such as abscess, furunculosis, pyoderma, chronic undermining burrowing ulcer of the skin and nonspecific granuloma. The chronic nature of the disease with extensive and persistent sinuses in the subcuticular fat layer is however, characteristic and once recognized, easy enough to diagnose almost at a glance (Pigott, 1984). Surgery plays an important role in patients with chronicsuppurative Hidradenitis, but more attention should be paid to the bacteriological flora. Some cases, previously unresponsive to medical therapy may have chronic anaerobic infections which might improve on appropriate antibiotic therapy.

The finding of multiple gram negative rods on smear with no growth on aerobic culture may help to identify such patients (Schimpff, 1980). Although surgical excision is often indicated, antimicrobial therapy is helpful in controlling the infection and if given early may abort the secondary infection and associated complications. Agents that have wide spectrum of activity against Beta lactamase producing species of *Bacteroidesspp*, *Staphylococcus aureus*are clindamycin, cefoxitin, Imepenemand also combination of Betalactams with betalactamase inhibitor (ItzhalBrook, 1988). Usually Long term antibiotic treatment is required and effective antimicrobial agents could be betalactams, clindamycin, chloramphenicol, and metronidazole etc. In conclusion, it is an unusual case of Chronic suppurativehidradenitis with superficial degenerative infection caused by polymicrobial obligate anaerobes which is difficult to diagnose owing to wide histological appearance and associated difficult microbial techniques in growing these obligate anaerobes. History of time duration, sinus formation with foul smelling discharge may facilitate us in the correct early diagnosis and appropriate treatment.

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