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Case Report

PYODERMA GANGRENOSUM SECONDARY TO TAKAYASU'S ARTERITIS

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ABSTRACT

Pyoderma gangrenosum (PG) is an uncommon & noninfectious neutrophilic dermatosis commonly associated with underlying systemic disease in more than 50% of cases. About 20–30% of cases are commenced and aggravated by minor trauma or surgery, a phenomenon named pathergy. PG is associated with many systemic diseases, but association with Takayasu's arteritis (TA) / pulseless disease, which is chronic inflammatory and stenotic disease of large sized arteries is less common. These conditions responded well with systemic corticosteroids. The association of PG with TA has been less reported in the literature so far.

KEYWORDS: Pyoderma gangrenosum, Takayasu's arteritis, Pulseless disease.

INTRODUCTION

Pyoderma gangrenosum(PG) is rare, ulcerative cutaneous condition of uncertain etiology. The diagnosis is based on standard classification consisting of typical clinical features and exclusion of other cutaneous ulcerating diseases.[1,2] Clinical manifestations of PG are characterized by destructive, necrotizing, and ulceration of the skin. The association of PG with systemic disease is seen in more than 50% of patients who are affected.[3,4] PG is reported in all the age groups but mainly affects in adults between the age 40 and 60 years. It affects approximately 1 in 1,00,000 population. The clinical presentation of PG may be diverse and there is neither a diagnostic laboratory test nor pathognomonic histopathological findings. Recently, the disease has been shown to involve the parenchyma of various organs.[5,6] Hence the diagnosis is made by excluding other causes of cutaneous ulceration, vasculitis, infection, diabetes, malignancy, collagen vascular diseases & trauma etc.[7, 8] In addition to other systemic diseases, PG is also associated with vasculitic conditions like TA, a chronic inflammatory granulomatous vasculitic and stenotic disease of large-sized arteries. This association is not commonly observed in North American, North Africa and European patients, but observed in Asians. The American College of Rheumatology has laid criteria for classification of Takayasu's arteritis (3/6 criteria). The features of 3 or more yields a sensitivity of 90.5% and a specificity of 97.8%.

CASE REPORT

A 32-year-old woman presented with multiple red colored elevated skin lesions associated with pain, on the right forearm and both legs since 8 months & weakness of right upper limb since 4 months. Patient initially developed a few painful elevated skin lesions on the right forearm, which gradually increased in size interspersed with small blisters over a period of 1 month and ruptured extruding pus. Later, she developed multiple discrete and grouped pus filled skin lesions along the border of previous healed area. Gradually, similar kind of lesions started to appear on both legs & right hand in 15days. The lesions on the right forearm increased in size, coalesced to form a plaque.

Pathergy test is positive [figure 1]. History of fever and pain present on & off. Fever was continuous throughout the day, high grade without chills/rigors and Pain is moderate in intensity and present episode is since 10days. The history of giddiness &

fatigue present since 6 months. No history of any joint pains, malaise, myalgia or drug intake prior to onset of disease. No history of headache, seizures, claudication, discoloration of digits, chest pain, weight loss or vision problem.

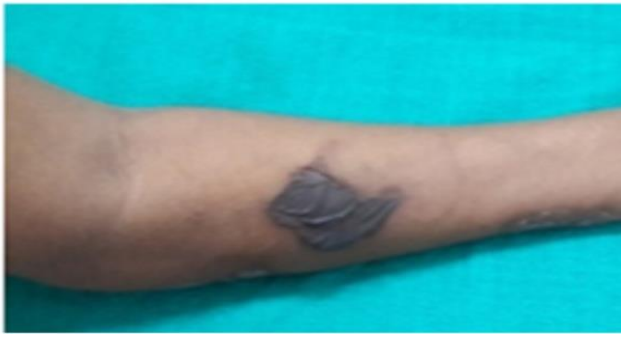


Figure 1. Pathergy - following needle prick.

Local examination shows multiple, discrete, ulcerated plaques with peripherally raised hyperpigmented rim and in centre and periphery studded with pustules on extensor aspect of both elbows and on anterior aspect of both legs. Skin ulcers can often be misdiagnosed.[9] Few discrete pustules are present on the extensor and flexor aspects of both forearms. [figure 2 & 3] Multiple, discrete, erythematous papules, comedones are present on the forehead and both cheeks.

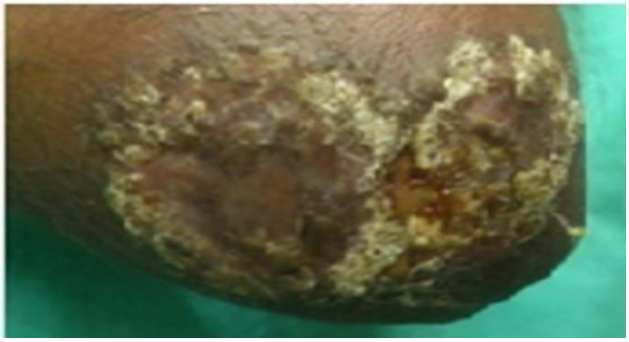


Figure 2. Multiple ulcerative plaques on the left elbow

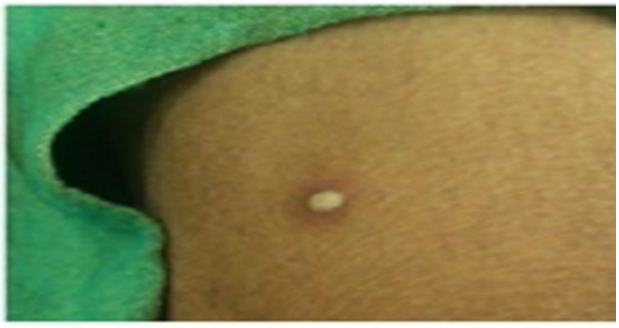


Figure 3. A single pustule on the right upper arm

Blood investigations done including Hemogram, Lever function test, kidney function test, antinuclear antibodies & Thyroid profile. On clinical examination she presented with feeble pulse on radial arterial on right side & asymmetry in blood pressure between both upper limbs. On Doppler vascular study of both upper limbs arterial system, there is no signal intensity in right radial artery and diminished flow in bilateral ulnar arteries. The left common carotid artery showed narrowing at base & right carotid artery could not be visualized. Magnetic Resonance Arteriography (MRA) without contrast shows origin occlusion at base of left common carotid artery. [figure 4, 5 & 6]

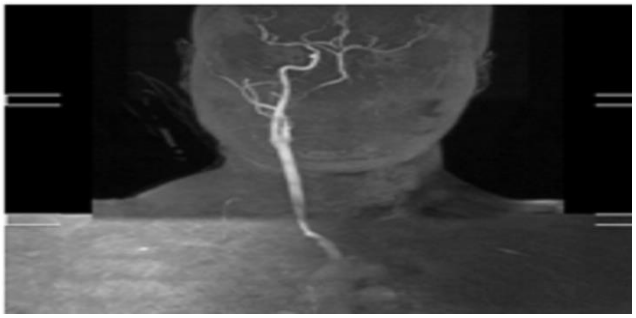


Figure 4. MRA of the neck - narrowing of left common carotid artery & total obliteration of right side

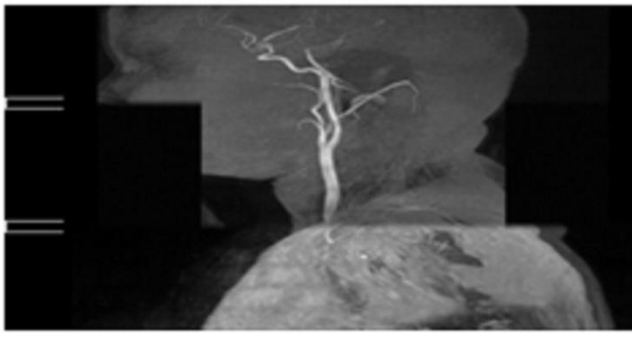


Figure 5. MRA of the neck lateral view - narrowing of common carotid artery at the base

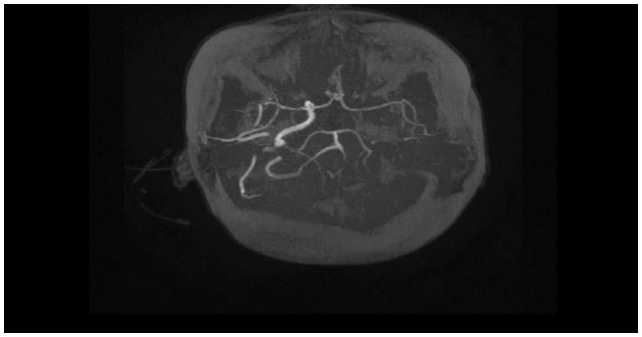
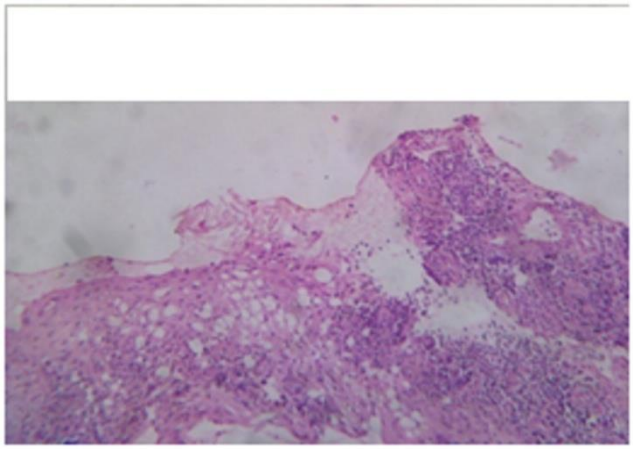


Figure 6. MRA shows missing right Internal carotid artery, middle cerebral artery & posterior communicating artery

Skin biopsy was performed from the ulcer, histopathological examination of biopsy specimen with haematoxylin & eosin showed acanthotic epidermis, adjacent to crater like lesion comprising ulceroinflammatory skin lining with neutrophilis [figure 7]. Inflammatory lesion is seen extending into subjacent dermal adipose tissue [figure 8]. Adipose tissue shows lobular and septal panniculitis in diffuse pattern with neutrophils and lymphoplasmacytic infiltrates.[10] Based on typical clinical findings and the histopathological features, the diagnosis of Pyoderma gangrenosum was made & MRA findings were consistent with Takayasu's arteritis. Patient was treated with systemic Corticosteroids at 1mg/kg/wt, responding well at regular follow up.



7. H&E stain x100 magnification - Acanthotic epidermis adjacent to crater like lesion

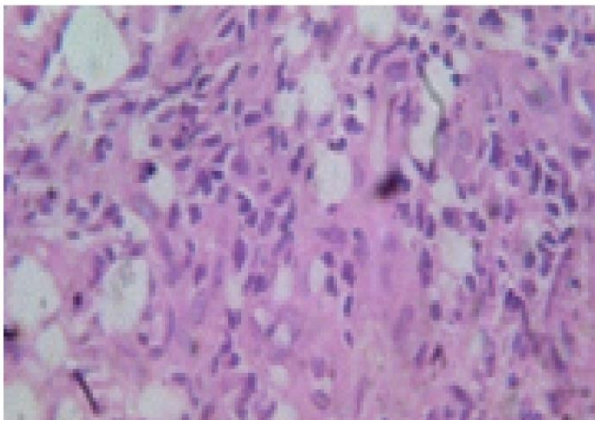


Figure 8. H&E stain x400 magnification shows inflammatory infiltrates (neutrophils) in the subcutaneous layer

DISCUSSION

Pyoderma gangrenosum(PG) was 1st identified in 1930. PG is characterized classically by skin ulceration with a violaceous margins. The skin lesions rapidly grow, painful and usually present with undermined edges with necrotic base. The atypical form can present with vesicles/pustules.[5,6] PG is associated with systemic diseases namely Ulcerative colitis, Rheumatoid arthritis, Crohn's disease and monoclonal gammopathy, Leukemia's, Wegener's granulomatosis, Takayasu's arteritis, Behcet's disease, Systemic lupus erythematosus, thyroid disease, and diabetes mellitus.[2] The association of PG with Takayasu's arteritis(TA) is rare entity. Ujiie et al described series of 35 cases & observed that this combination is common in young females with more widespread lesions in Japan.[11] Whereas is India it is less common, as reported in literature. TA is a chronic inflammatory and obliterative disease of large vessels particularly the aorta and its major branches. The condition is named after **Dr. Takayasu's** (Japanese ophthalmologist) reported first similar vascular features on the retina in 1908. TA defined as "granulomatous inflammation of the aorta and its major branches" by the Chapel Hill Consensus Conference on the Nomenclature of Systemic Vasculitis in patients younger than 50 years. Involvement of Aorta and its branches can lead to Aortic arch syndrome with arm claudication & absent radial or brachial pulses hence pulseless disease or subclavian artery bruits.

The choice of treatment depends on disease severity and associated systemic disease. Mild forms respond to topical therapy with topical/ intralesional corticosteroids or tacrolimus. For severe disease or resistant to topical therapy, systemic corticosteroids are main stay of treatment for both Pyoderma gangreanosum as well as Takayasu's arteritis. The Cyclosporine as 2nd line therapy. Surgical procedures like percutaneous angioplasty & bypass surgery is done when there is no acute inflammation for TA. Various other drugs with anti-inflammatory properties like Dapsone, Minocycline, Clofazamine, Thalidomide, Methotrexate, Cyclosporine[12] & Infliximab etc. are tried. Ujiie et al observed PG with TA association occurs predominantly in young females & exhibit

more widespread skin lesions.[11] One case of TA presenting as malignant PG in child reported by Sameer et al & another case reported PG with sterile osteomyelitis preceding TA.[13,14] DeFilippis et al observed that patients with MTHFR mutations and JAK2 gene mutations responded to different treatments. For example, intake of vitamins B and Thalidomide improved PG in cases of MTHFR mutations & myelodysplastic syndrome respectively.[15] Aoussar et al reported in 60% of cases, pyoderma gangrenosum precedes Takayasu's arteritis.[16] In our case patient was started on Oral corticosteroid 1mg/kg, which is 1st line therapy. Patient followed up every week with good response at 6th week. This case is being sent for reporting because of its rare association.

CONCLUSION

Pyoderma gangrenosum usually associated with underlying systemic disease. But, association with Takayasu's arteritis is rare entity. This presentation aims in stressing the importance of systemic examination to identify hidden cause.

AKNOWLEDGEMENT

I would like to thank the patient for her cooperation

CONFLICT OF INTEREST

Nil

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