

# Two cases of giant pyogenic granuloma of scalp

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## ABSTRACT

Pyogenic granuloma is a benign vascular tumor of unknown etiology, though multiple factors play a role in its onset, e.g., trauma, chronic irritation, drugs etc., It is commonly seen in children and adolescents. Giant pyogenic granuloma is its atypical variant. We are presenting two cases of giant pyogenic granuloma, one, in a 28-year-old adult, presenting as a giant fluffy swelling of scalp and the other in a 11-year-old child, presenting as a giant ulcerated globular swelling of the scalp.

**Key words:** Lobular capillary hemangioma, pyogenic granuloma, vascular tumors

## INTRODUCTION

Pyogenic granuloma (PG) also known as granuloma telangiectaticum is a benign vascular tumor commonly seen in infants and children but can also occur in adults, particularly in pregnant women. Although the exact cause is not known, possible inciting agents are trauma, chronic irritation, drugs, e.g., retinoid, mitozantrone, indinavir, and erythropoietin. It usually presents as a solitary, red, rapidly growing papule or a nodule. Giant PG variant is very rare. Here we are presenting two cases of giant PG occurring on scalp.

was yielding and breaking like a empty gelatinous egg shell. Differential diagnosis considered were: Foreign body reaction to retained sutures, PG and mucormycosis, squamous cell carcinoma.

Patient was negative for serologica I test for HIV and syphilis. Other routine investigations were within normal limits. Scraping for fungal filaments and fungal culture were negative. Biopsy from the swelling revealed focally ulcerated epidermis with ulcerated area showing granulation tissue with proliferating fibroblasts and blood vessels [Figure 2]. Dense inflammation composed of lymphocytes, plasma cells, few PMN, and eosinophils. No evidence of granuloma or neoplasm was observed. Pathologist opined that it was a reactive pattern similar to PG with ulceration and exuberant granulation tissue amid dense acute-on-chronic inflammation.

Patient was given systemic antibiotics, oral metronidazole, and topical betadine. The swelling regressed gradually in size over a period of 5 weeks, leaving behind an adherent crust. Sutures were removed by removing the crust only after swelling regressed completely.

## CASE REPORT

### Case 1

A 28-year-old male presented with a dirty white colored fluffy swelling on the scalp of 10 days duration. Patient had a history of a scalp injury in a road traffic accident 17 days back, for which suturing was done at a private clinic. Patient did not clean the wound or wash scalp for the next 17 days. Sutures were not removed. He developed an asymptomatic swelling at the same site about 10 days after suturing which gradually grew in size. On cutaneous examination, a friable dirty cream white colored, soft, multi-lobular hemispherical swelling of 4 cm × 4 cm was seen on the left fronto parietal area of scalp [Figure 1]. On palpation, the swelling was non-tender and the base was adherent to the scalp, with bleeding from the base on manipulation. On firm pressure, the swelling

### Case 2

A 11-year-old child presented with complaints of a globular swelling with ulcerated surface and slight sero-sanguineous discharge over the occipital region of scalp of 2 months duration. There was a history of injury at that site 2 weeks prior to the onset of swelling, for which an ayurvedic paste was applied. A local practitioner

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attempted unsuccessfully to excise the swelling. After 10 days the patient again sustained an injury at the same site after which the lesion started to grow rapidly and in about 1 month time it grew to the size of 4 cm × 5 cm with ulcerated surface and sero-sanguineous discharge. There was slight itching on the swelling but no pain.

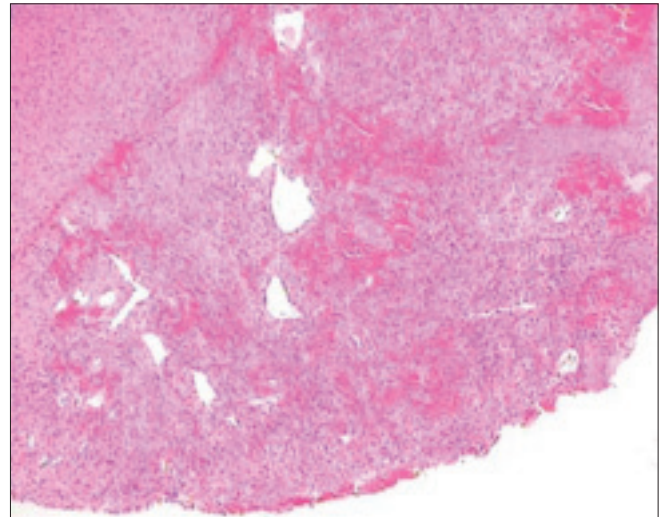
On examination, a lobulated swelling 4 cm × 5 cm with a erythematous glistening surface with patchy necrotic areas covered with yellowish-brown crust along with adherent cotton was observed on vertex of the scalp [Figure 3]. On palpation the swelling was soft, non tender, slightly mobile in both directions with mild sero-sanguineous discharge which increased on firm pressure. Posterior and anterior group of cervical lymph

nodes were enlarged. General examination of the patient was normal. Differential diagnosis considered were deep fungal infections, squamous cell carcinoma. Routine investigations were under normal limits. Discharge for fungal filaments and fungal culture were negative. Serological tests for HIV and syphilis were non-reactive.

An excisional biopsy of the entire lesion was done. Histopathology showed a lobular capillary hemangioma [Figure 4]. Patient was reviewed at one and four weeks and the surgical site healed without any recurrence.



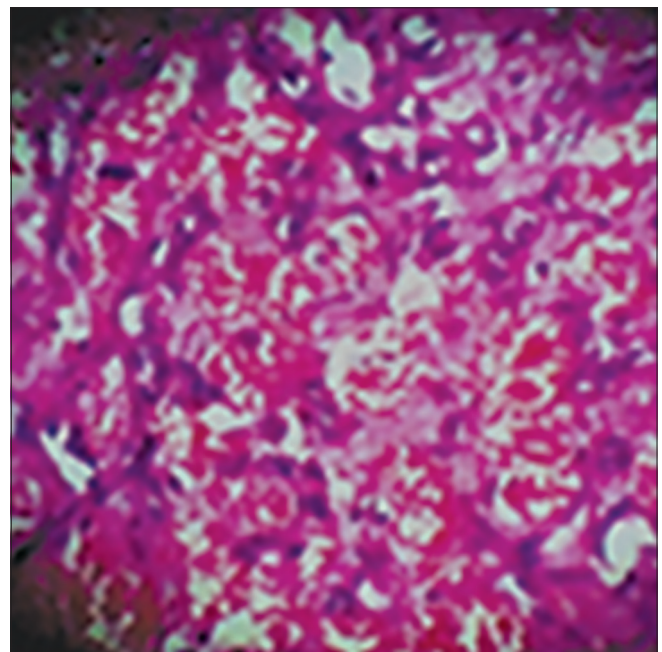
**Figure 1:** Clinical photograph of Patient 1 showing dirty white colored, soft, multi lobular hemispherical swelling of giant PG on the left fronto-parietal area of scalp



**Figure 2:** Histopathology of patient 1 showing loss of epidermis (ulceration) with vascular clefts, hemorrhage, lymphocytic, and PMN infiltrate along with epidermal strands into the cavity of tumor (H and E, ×100)



**Figure 3:** Clinical photograph of patient 2 showing a giant PG with ulcerated surface and un-healthy granulation tissue with lumps of dried up cotton gauze on the left parieto-occipital region of the scalp



**Figure 4:** Histopathology of patient 2 showing fibrous background with numerous interconnected vascular channels filled with RBC, suggestive of lobular capillary hemangioma (H and E, ×400)

## DISCUSSION

The term PG is a misnomer, as it is neither infectious nor granulomatous in nature. It is common in children and unusual in elderly. Its prevalence peaks in second decade of life.<sup>[1]</sup> PG usually present as a solitary, rapidly growing, red papule or nodule, usually painless, with propensity to bleed spontaneously or with manipulation. Most of the cases have a history of trauma. PG of skin is more common in males, while mucosal occurrence is more common in females. "Granuloma gravidarum" or pregnancy tumor, which is a PG of oral cavity, commonly seen in second or third trimester is the most common mucosa l variety.<sup>[2]</sup> The commonly involved sites on skin are peri-ungal area of fingers, the feet, lips, head and upper trunk and perianal area, although sites such as scalp is also reported.<sup>[3]</sup>

The actual mechanism for the development of PG is not known. Trauma, hormonal influences, viral oncogenes, underlying microscopic arterio-venous malformations plays their role. PG were reported after the use of oral and topical retinoid,<sup>[4]</sup> indinavir,<sup>[5]</sup> erythropoietin, systemic 5-fluorouracil, and mitozantrone.<sup>[6]</sup> PG was reported in pre-existing nevus flammeus and spider angiomas and developed at the site of cherry angioma treated with pulsed-dye laser.<sup>[7]</sup> The production of angiogenic factors, cytogenetic abnormalities and over expression of transcription factors P-ATF2 and STAT3 were found to have a role in its development.<sup>[8]</sup>

Typically, PG grows rapidly for a few weeks and then stabilizes at a size of about 2 cm in diameter, although larger swellings (giant PG) are known to occur.<sup>[3,9]</sup> Early lesions have a thin intact epidermis, but older lesions are frequently eroded and crusted and may bleed very easily. Occasionally, the surface can be verrucous. In patient 1 of this report, the surface was dirty white in color, which is unusual and not reported till now, while in the second patient, the surface was glistening red with partial crusting. The base of the PG was sessile in the first patient,<sup>[10]</sup> while it was pedunculated in the second, with both varieties being reported in literature. Giant PGs, although infrequent, were reported in literature. A Giant PG was reported at the site of scar in a HIV-patient.<sup>[11]</sup> A case of giant PG of scalp was reported in a pregnant woman after an injury to scalp.<sup>[3]</sup> In the present report, it appeared at the site of injury on the scalp in both the patients and grew to become a giant PG.

In typical PG, histopathology shows lobular proliferation of small blood vessels which erupt through a breach in the epidermis to produce a globular pedunculated tumor. In ulcerated lesions a superficial inflammatory cell reaction can give rise to an appearance of a granulation tissue, a mixed cell population of fibroblasts, lymphocytes, plasma cells can be seen. In patient 1 of this report, there was focally ulcerated epidermis showing

granulation tissue with proliferating fibroblasts with dense inflammatory infiltrate.

The angiomatous tissue occasionally tends to occur in discrete masses or lobules, resembling a capillary hemangioma; hence, histologically PG is also named as lobular capillary hemangioma. Patient 2 of this report showed typical features of a lobular capillary hemangioma. It was composed of variably dilated network of blood-filled capillary vessels and groups of poorly canalized vascular tufts. Bacillary angiomatosis which clinically and histologically resembles PG can be differentiated on histology as it shows prominent pale epithelioid endothelial cells, neutrophils, and nuclear dust throughout the lesion along with the features of lobular capillary hemangioma. In addition, Giemsa or Warthin-Starry stains demonstrate bacilli which are easily identifiable as violaceous amorphous aggregates.

Various modalities available to treat the PG include curettage and cauterization, coagulation of the base with diathermy, excision and sutures, cryo-therapy with liquid nitrogen or nitrous oxide and lasers.

## CONCLUSION

PG is a common benign vascular tumor seen in children and occasionally in adults, with most of them growing to <2 cm in size. However, in the present report, PGs in both patients grew to a size of >4 cm to be considered as giant PG. In both these patients, the inciting cause was an injury, which was improperly attended initially and later mismanaged. The probable reason for the PG to grow to a giant size in these patients could be due to deep injury of the scalp with secondary foreign body reaction of the tissue, to the suture material in the first case and to indigenous ayurvedic pastes in the second. These two cases of giant PG of the scalp are being reported for their rarity.

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