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CASE REPORT

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An unusual case of granulomatosis with polyangiitis with unilateral parotid gland enlargement

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Key Clinical Message

Here, we report a case of granulomatosis with polyangiitis presenting with unilateral parotid gland enlargement and later developed skin lesions on the lower extremities and abdomen. Although rare, salivary gland enlargement may be the presenting sign of Wegener's granulomatosis or other ANCA associated vasculitides.

KEYWORDS

granulomatosis with polyangiitis, parotid, vasculitis, wegener's granulomatosis

1 | INTRODUCTION

Granulomatous necrotizing inflammatory lesions of the upper and/or lower respiratory systems are hallmarks of Wegener's granulomatosis an anti-neutrophil cytoplasmic antibody (ANCA)-associated vasculitis that may also lead to pauci-immune glomerulonephritis and, in certain instances, rapid disease progression.[1] The literature also refers to Wegener's granulomatosis as granulomatosis with polyangiitis (GPA).[2] Nasal congestion and discharge, epistaxis, sinusitis, cough, hearing loss, and oral ulcers are common symptoms when the upper respiratory tract is affected.[3] Salivary gland involvement is rare in patients with GPA.[4] Given that salivary glands are involved in a number of diseases, such as infectious diseases, benign tumors, IgG4-related disease, sarcoidosis, Sjogren's syndrome, lymphomas, and malignancies, salivary gland involvement in GPA, a rare and atypical presentation, can cause a critical delay in making an accurate diagnosis and beginning treatment.[5,6] We describe a case of GPA presenting with unilateral parotid gland involvement who later developed cutaneous lesions.

2 | CASE REPORT

A 59-year-old woman who had been experiencing facial pain, rhinorrhea, and frequent sneezing for 1 month presented with left parotid gland pain and swelling to a general physician 5 months ago. Ultrasound revealed a cystic mass, and she was referred to an otorhinolaryngologist. The otorhinolaryngologist suspected that the cystic growth on ultrasound was a Warthin's tumor and she underwent unilateral parotidectomy. Histological examination of the parotid gland showed severe mixed acute suppurative necrotizing and chronic inflammation, with few granulomas involving parotid gland and surrounding fibroadipose tissue accompanied by mild acute vascular wall inflammation. Some small reactive lymph nodes were also seen (Figure 1). After surgery, the patient had peripheral facial nerve palsy and hemifacial paresis along with xerophthalmia and purulent discharge from the surgical site.

Four months after parotidectomy, the patient came to our center with bilateral hemorrhagic bullous lesions, petechia, and purpura on her lower extremities and abdomen (Figure 2). She underwent skin punch biopsy of the leg and direct immunofluorescent (DIF) assessment. Biopsy revealed superficial crust, mild acanthosis, and slight spongiosis in epidermis. The underlying dermis demonstrated moderately dense superficial and mild dermal perivascular infiltration of neutrophils and a few eosinophils accompanied by endothelial swelling, leukocytoclasis, intraluminal thrombi, fibrinoid necrosis of the vessel wall, and red blood cell (RBC) extravasation (acute leukocytoclastic vasculitis of small dermal vessels). (Figure 3). Furthermore, granular deposits of anti-IgM along the dermal epidermal junction and focal superficial vascular wall deposition of anti-C3 were observed in DIF compatible with vasculitis (Figure 4). Laboratory test results showed centrally accentuated ANCA (c-ANCA) of 59.9 AU/mL (five times the normal values), perinuclear ANCA (p-ANCA) of 10.1 AU/mL, erythrocyte sedimentation rate of 71 mm/h, and C-reactive protein of 97 mg/L. Urinalysis revealed 1+ proteinuria, 3+ hemoglobinuria, and dysmorphic RBCs. Culture of the discharge from the parotid surgery site came back negative.

Abdominopelvic ultrasound and chest x-ray were normal. Head and neck magnetic resonance imaging (MRI) showed skin thickening, edema, and enhancement on the side of parotidectomy without evidence of abscess formation but with mucosal thickening in both maxillary sinuses. Following MRI, the left nasal septum was biopsied, which showed no evidence of vasculitis or granuloma.

Based on the nature of cutaneous lesions, histological examination of the parotid and skin lesions, as well as the

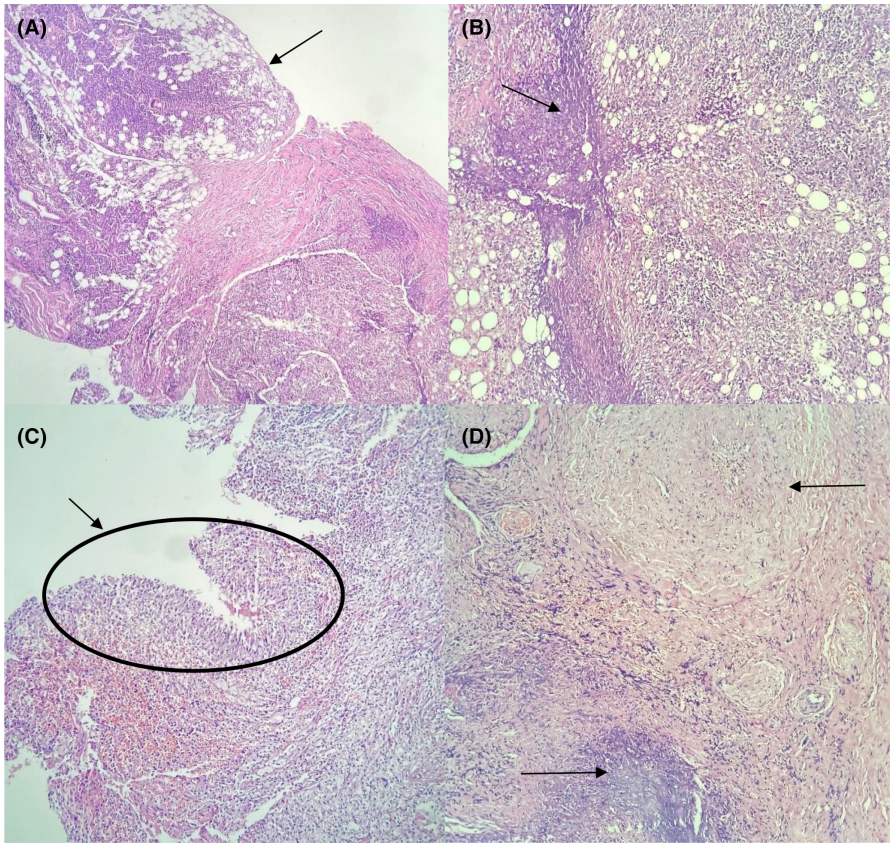

FIGURE 1 (A) The parotid gland is involved in a chronic inflammatory process (H & E staining, ×40); (B) areas of necrosis and acute suppurative inflammation are present and shown by arrow (H & E staining, ×100); (C) foci of non-necrotizing granuloma mostly composed of palisading epithelioid histiocytes (H & E staining, ×100); and (D) necrosis and acute inflammation in the parotid gland tissue (left arrow) and mild neutrophilic infiltration in the vascular wall (right arrow), accompanied by vascular wall thickening, narrowing of the vascular lumen and occasional intraluminal thrombus formation reminiscent of vasculitis (H & E staining, ×100).

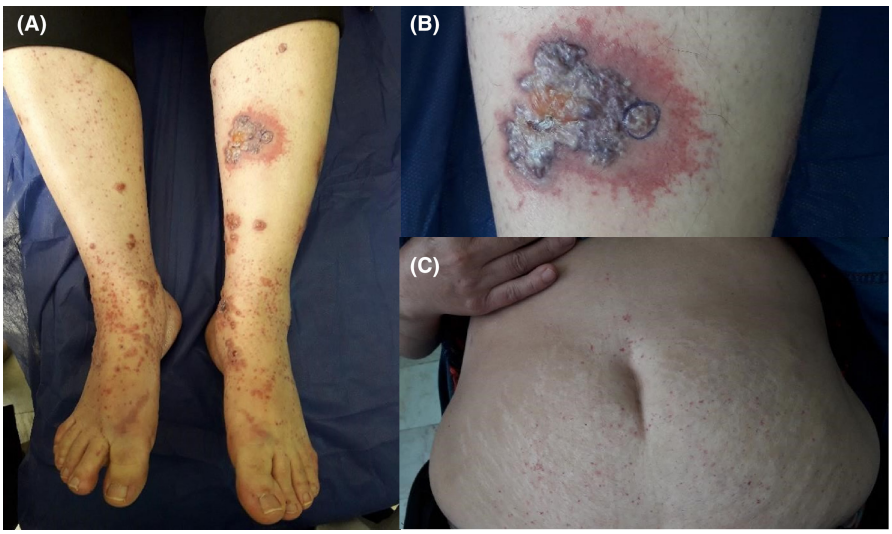

FIGURE 2 (A) Bilateral hemorrhagic bullous lesions, petechia, and purpura on lower extremities; (B) a closer look at one of largest lesions; and (C) petechia on the abdomen.

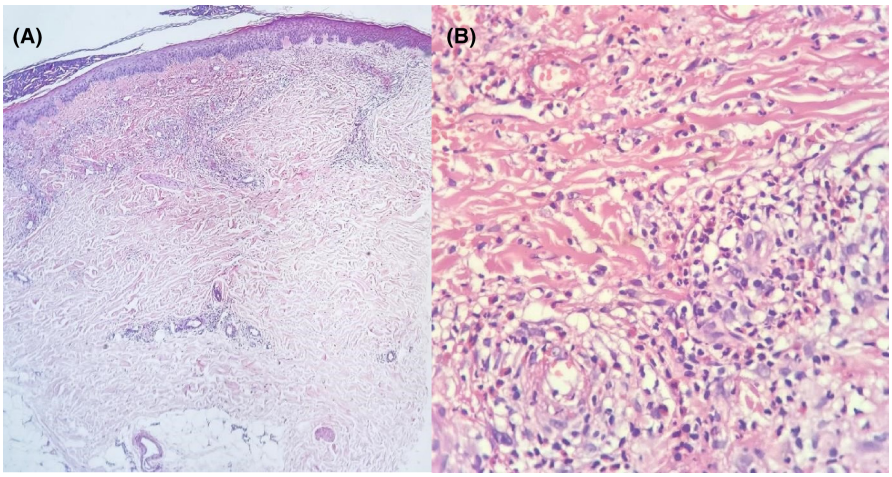

FIGURE 3 (A) Acute leukocytoclastic vasculitis of leg skin biopsy. There is dense inflammatory cell infiltration around the superficial and mid-dermal small vessels (H & E staining, ×40); and (B) the infiltrate is composed of many neutrophils and some eosinophils. Red blood cell extravasation, endothelial swelling, leukocytoclasis (left arrow), and fibrinoid necrosis of the vessel wall (right arrow) (H & E staining, ×400).

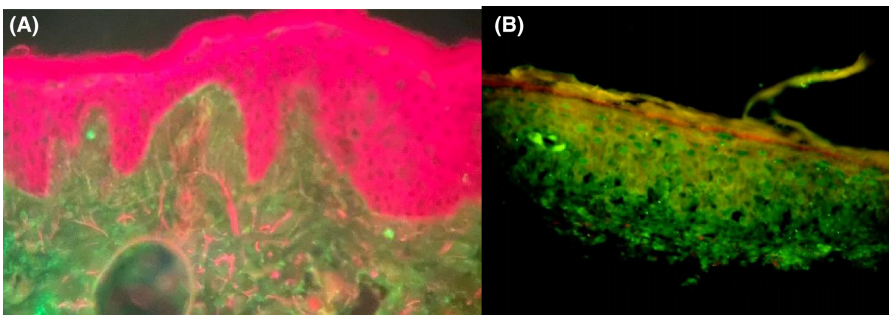

FIGURE 4 (A) Granular deposit anti-IgM and (B) focal anti-C3 deposition in superficial vascular wall.

positive c-ANCA, the patient was transferred to the internal medicine service of the hospital with the diagnosis of Wegener's granulomatosis.

3 | DISCUSSION

According to previous research, the incidence of salivary gland involvement in GPA, any time during the course of the disease, ranges from <1% to 3%.[7,8] By reviewing 50 GPA cases with salivary gland involvement, Chandwar et al. reported a slight male preponderance.[4] However, a few studies revealed a modest female predominance.[9,10] Consistently, our index case was female. GPA is known to manifest more often in the fifth and sixth decades of life,[4] like our patient, who was in her 50s.

Rhinorrhea and frequent sneezing were the symptoms of our patient before unilateral parotid gland enlargement. Likewise, recent prevalence surveys have shown that approximately 80% of GPA patients had constitutional

symptoms. GPA patients with salivary gland involvement were more likely to have upper respiratory tract than lower respiratory tract involvement.[10,11] The rhinorrhea and sneezing in our patient could easily be attributed to a common cold or flu and the facial pain might be due to sinusitis when parotid involvement had not occurred yet; nevertheless, sinonasal CT scanning before parotidectomy showed no sinus involvement.

Our patient showed facial nerve palsy after parotidectomy. We are not certain whether this was due to the GPA itself or a complication of parotidectomy, as previous studies suggest that the facial nerve can be affected in GPA patients with parotid involvement.[4] Furthermore, the post-operative MRI of the index case revealed no evidence of abscess formation. However, parotid abscess has been reported in GPA patients with the involvement of this salivary gland.[4,12–14]

Presentation of GPA with parotid gland involvement but without any sinus implication may propose a challenging diagnostic pitfall. This is mostly due to the salivary gland involvement observed in various rheumatological diseases. We aim to follow-up the patient to determine the prognosis, as it has been suggested that GPA patients with salivary gland involvement may have a better prognosis with minimal renal and uncommon central nervous system involvement.[4]

4 | CONCLUSION

Granulomatosis with polyangiitis (GPA) is an ANCA associated vasculitis involve respiratory systems. Salivary gland involvement is rare in GPA. We describe an unusual case of GPA presenting with unilateral parotid gland involvement who later developed cutaneous lesions.

AUTHOR CONTRIBUTIONS

Toktam Safari Giv: Conceptualization; validation; writing – original draft. **Ghazal Mardani:** Writing – review and editing. **Azadeh Rakhshan:** Validation. **Mohammad Kouhestany:** Validation. **Hamideh Moravvej:** Conceptualization; project administration.

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CONFLICT OF INTEREST STATEMENT

All authors declare that they have no conflicts of interest.

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DATA AVAILABILITY STATEMENT

The data are available from the corresponding author upon reasonable request.

CONSENT

Written informed consent was obtained from the patient to publish report in accordance with the journal's patient consent policy.

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