Bangladesh Journal of Medicine (BJM)
ISSN : 1023 - 1986
eISSN : 2408 - 8366

CASE REPORT

A YOUNG GIRL WITH GRANULOMATOSIS WITH POLYANGIITIS: A RARE CASE REPORT

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Abstract

Granulomatosis with polyangiitis (GPA), formerly known as Wegener's granulomatosis is a necrotizing vasculitides that primarily affects small-sized arteries and manifests differently depending on the organ involved and the severity of the disease. Here we are reporting a case of a 15-year-old girl presented with purulent nasal discharge with epistaxis, cough, reduced hearing, fever & rash. Tissue biopsy report, positive C-ANCA, imaging and clinical features were consistent with the diagnosis of GPA.After counseling the patient & her parents and taking consent, she has been treated with intravenous methylprednisolone and cyclophosphamide. Despite being a rare disease with a typical age of onset around 40 years, it should be suspected in any aged patient exhibiting constitutional symptoms and other evidence of upper or lower respiratory tract involvement or glomerulonephritis.

Key words: *Granulomatosis with polyangiitis (GPA), Wegener's Granulomatosis, necrotizing vasculitides*

Received: 09.12.2022 *Accepted: 10.04.2023*
DOI: https://doi.org/10.3329/bjm.v34i2.65619

Citation: *Rahman MM, Roy RS, Rabbani MG, Banu A, Kabir MJ, Azad MAK. et al. A Young Girl With Granulomatosis with Polyangiitis: A Rare Case Report. Bangladesh J Medicine 2023; 34: 151-154.*

Introduction:

Granulomatosis with polyangiitis (GPA) is a clinicopathologic condition characterized by granulomatous vasculitis of the upper and lower respiratory tracts together with glomerulonephritis. The German pathologist Friedrich Wegener described it in 1936 leading to the eponymous name "Wegener's granulomatosis".[1] It has a prevalence of 2.3 to 146.0 cases per million people and an incidence of 0.4 to 11.9 cases per million people.[2] A positive ANCA test strongly supports but does not confirm the diagnosis as around 10% with patients GPA may be ANCA negative[3]. Immunosuppressive therapy is warranted in almost all patients with active GPA.Treatment consistsof an initial induction phase followed by a maintenance phase.Despite the ability to successfully induce remission, 50–70% of remissions are later associated with one or more relapses.Here, we reported a case of ANCA positive GPA which predominantly presented with respiratory tract involvement.

Case Report:

A 15-year-old girl was admitted to the medicine department of Rangpur Medical College & Hospital with a three-year history of purulent nasal discharge and multiple episodes of epistaxis in the previous two months. She also complained of rash in lower

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limbs, ear & palm of both hands for ten days, as well as fever for same duration. There was history of recurrent sinusitis, occasional dry cough, reduced hearing in both ear & pain over multiple joints. She had no history of hemoptysis, chest pain, and redness of eye, visual loss, weight loss, tingling or numbness, high colored frothy urine. Her past medical history and family history were unremarkable. There was no history of tuberculosis or exposure to any known tuberculosis patient.

On examination the patient was anemic. She had crusting over nasal septum& nasal bridge was depressed [Fig 1(A)]&there was an ulcer in soft palate[Figure 1(B)].Maculopapular rash was present in both lower limbs up to the knee which were erythematous, non-tender & some were palpable[Figure 1(C)].Jaundice, lymphadenopathy, bony tenderness, or organomegaly were absent. Bed side urine for heat coagulation test for protein was negative & Fundoscopy reveals no abnormality.

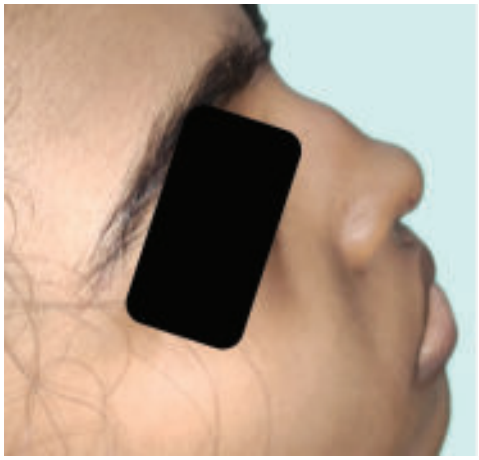

Figure 1(A) Depressed nasal bridge

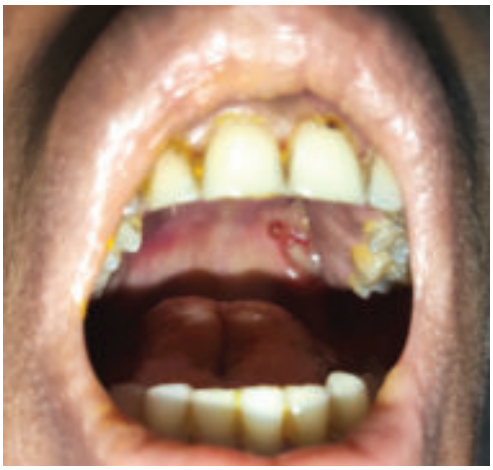

Figure 1(B) Ulcer in soft palate

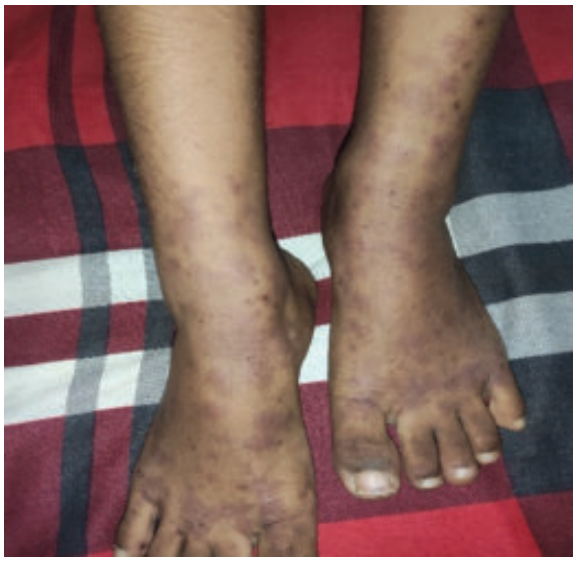

Figure 1(C) Maculopapular rashes in both lower limb

Laboratory studies showed normocytic normochromic anemia (Hb- 8.5 gm/dl), raisedWBC (total count - 17.5k/iL, eosinophil- 01%), ESR & CRP.Proteinuria, hematuria & urinary sedimentwere absent. S creatinine, ACR, S electrolytes, SGPT, C3 & C4 level were normal. HBsAg, Anti HCV, RA test, ANA, Anti-ds-DNA all were negative.C-ANCA was positive[182.0 U/ml (Normal <12)] whereas P-ANCA was negative[0.60 U/ml U/ml (Normal <12)].Pure Tone Audiometry(PTA) revealed severe sensory neural type hearing loss in the left ear and moderate conductive type hearing loss in the right ear. Chest X-ray showed nodular opacity[Figure 2(A)].X-ray PNS showed Hazy right maxillary sinus & mucosal thickening of left maxillary sinus [Figure 2(B)]. Biopsy from nasal tissue revealed infiltration of inflammatory cells along withgranulomas made of epithelioid cells.

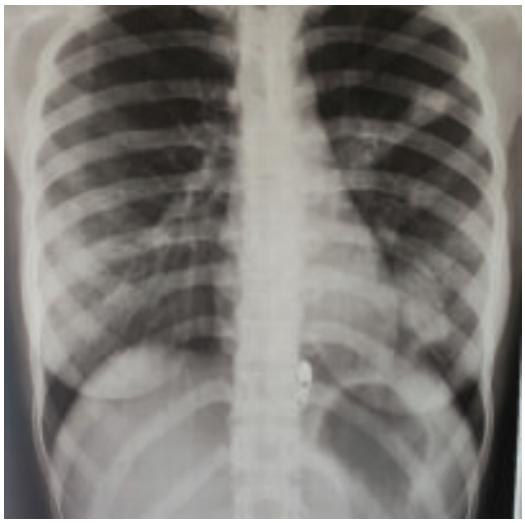

Figure 2(A) Chest X-ray showed nodular opacity

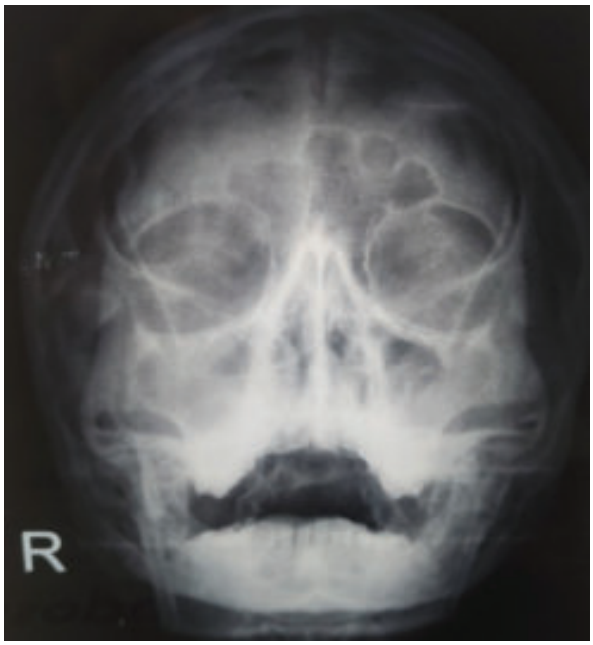

Figure 2(B) X-ray PNS showed Hazy right maxillary sinus & mucosal thickening of left maxillary sinus

After excluding illnesses resembling vasculitis patients may be classified as having GPA under the 2022 American College of Rheumatology/European Alliance of Associations for Rheumatology diagnostic criteria.A score of e—5 is required to classify as GPA. In our patienttotal score was 16 [For nasal involvement +3, cartilaginous involvement +2, hearing loss +1, positive cANCA +5, pulmonary nodule +2, and inflammation of paranasal sinus 1, Granuloma on biopsy 2]. This criterion has sensitivity of 93% and specificity of 94%.[3]

Discussion:

Granulomatosis with polyangiitis (GPA) is an ANCA associated vasculitis which predominantly affects small size arteries. Males and females are equally affected. Though GPA most commonly affects the respiratory tracts and the kidneys, it can affect small blood vessels in almost any organ or tissue. Its presentation varies from less severe nonspecific clinical symptoms to severe organ-threatening or life-threatening disease. Nonspecific symptoms include fever, weight loss, myalgias, and arthralgias [4,5] and without showing any specific organ involvement, these symptoms may persist for weeks to months [5] .ENT manifestations are nasal crusting, discharge or epistaxis, recurrent sinusitis, oral and/or nasal ulcers, saddle nose deformity. Patients frequently develop conductive and/or sensorineural hearing loss, which can impair hearing permanently [6].Coughing, dyspnea, hemoptysis are symptoms of pulmonary involvement [6,7].In studies from the National Institutes of Health (NIH) in the United States, evident glomerulonephritis was present in only 18% of patients at presentation [8]. although glomerulonephritis later occurred in 77–85% of patients, usually within the first two years of disease onset. In case of our patient there was no renal involvement. The most typical skin condition is purpura, which typically affects the lower limbs.Neurologic involvement includes mononeuritis multiplex, cranial nerve abnormalities. The presence of mononeuritis multiplex associated with a worse prognosis compared with those without this feature [9].

Initial investigations include CBC which may show anemia, leukocytosis or thrombocytosis[8], ESR & CRP may be raised. Kidney involvement may be detected with a serum creatinine test and a urinalysis with urine sediment. Anti-GBM Ab, C3 and C4 levels, ANA, cryoglobulins, tests for HIV, hepatitis B &C, liver function tests, tuberculosis screen, blood cultures should also be done to rule out other possible diagnoses. Chest X-raymay shownodules, patchy or diffuse opacities and fleeting pulmonary infiltrates & hilar lymphadenopathy [10]GPA is primarily associated with C-ANCA (65-75% cases). However, 20-30%is associated with P-ANCA, and at least 10% are ANCA negative [11]Whenever possible, the diagnosis of should be confirmed by biopsy of a site of suspected active disease.

Therapy for GPA has two main components: induction of remission with immunosuppressive therapy and maintenance of remission with immunosuppressive therapy to prevent relapse. Glucocorticoids in combination with either rituximab or cyclophosphamide should be used in patients with GPA who have organ- or life-threatening illness. Observational studies revealed that the induction therapy regimen of cyclophosphamide plus glucocorticoids was linked to a greater than fivefold increase in survival and a decreased incidence of relapse [12]Complement C5a receptor inhibitor avacopan can be used as an adjunctive agent with standard induction therapy [13]For maintenance of remission after induction immunosuppressive therapy rituximab, azathioprine, methotrexate, and mycophenolate may be used.

Our patient got pulse cyclophosphamide with methylprednisolone & with this treatment though hearing impairment hasn't been improved significantly, there was no history of epistaxis, sinusitis, fever in last 4 months & chest x-ray was also normal.

Without treatment survival in GPA is 10% in 2 years.Therefore, it's crucial to take this diagnosis into consideration in patients for early treatment to reduce mortality and morbidity.

Conclusion:

GPA is a complex multifactorial pathology, with various clinical manifestations, and specific criteria have not been unified to be able to issue an early diagnosis and timely start of treatment. Pediatric GPA is a rare systemic vasculitis with life threatening and severe complications. Our case shows the importance of considering the GPA as one of the differential diagnosis amid adolescent presenting with recurrent sinusitis and multiple episodes of epistaxis and jpont pain. The early diagnosis of this type of cases leads to early management of the disease and achieve a significant impact on survival and thus improve its prognosis.

Conflict of Interest:

The authors stated that there is no conflict of interest in this study

Funding:

This research received no external funding.

Consent:

For the purpose of publishing this case report and any related photos, the patient are written informed consent was acquired.

Acknowledgments:

The authors were grateful to the staffs of the Department of Medicine in Rangpur Medical College & Hospital, Bangladesh.

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