Nasal Septal Perforation: A Novel Clinical Manifestation of Systemic Juvenile Idiopathic Arthritis/Adult Onset Still’s Disease

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ABSTRACT. Nasal septal perforation has been well recognized in patients with various rheumatic diseases. To our knowledge, this condition has not been reported in children with systemic juvenile idiopathic arthritis (SJIA) or patients with adult onset Still’s disease (AOSD). We describe 3 patients with persistent SJIA/AOSD who developed nasal septal perforation during the course of their disease. As illustrated by these cases, nasal septal perforation may develop as a rare complication of SJIA/AOSD and can be considered as part of the clinical spectrum of the disease. In one case the nasal septal perforation was associated with vasculitis. (J Rheumatol 2005;32:2429–31)

Key Indexing Terms:
SYSTEMIC JUVENILE IDIOPATHIC ARTHRITIS
NASAL SEPTAL PERFORATION

Perforation of the nasal septum has been well recognized in patients with various rheumatic diseases, including Wegener’s granulomatosis, systemic lupus erythematosus (SLE), and sarcoidosis. Nasal involvement is one of the major features of Wegener’s granulomatosis and may lead to massive destruction of the septal cartilage and saddle-nose deformity. Nasal septal perforation is also a recognized complication of mucosal involvement in SLE and occurs in up to 5% of patients. Nasal septal perforations have rarely been reported in other rheumatic diseases, including rheumatoid arthritis, psoriatic arthritis, and progressive systemic sclerosis.

To our knowledge, nasal septal perforation has not been reported in children with systemic juvenile idiopathic arthritis (SJIA) or patients with adult onset Still’s disease (AOSD).

Systemic JIA is a subtype of JIA characterized by prominent extraarticular features. In addition to chronic arthritis, the most common manifestations are fever, evanescent rash, generalized lymphadenopathy, hepatosplenomegaly, and serositis. AOSD is virtually identical in clinical and laboratory manifestations to SJIA and may occur at all ages. We describe 3 patients with persistent SJIA/AOSD who developed nasal septal perforation during the course of their disease (Table 1).

CASE REPORTS

Case 1. A 4.5-year-old girl first presented in February 1998 with an 8 week history of spiking fever, evanescent rash, and polyarthritis. Laboratory investigations showed erythrocyte sedimentation rate (ESR) of 115 mm/h, hemoglobin 105 g/l, white blood cell count (WBC) count 17.4 x 10⁹/l, and platelet count 420 x 10⁹/l. A diagnosis of SJIA was made and she was initially treated with indomethacin, followed by pulse methylprednisolone, oral prednisone (up to 2 mg/kg/day), and intraarticular corticosteroids. She had a very difficult disease course, with persistent systemic symptoms and destructive polyarthritis unresponsive to treatment with intravenous immunoglobulin, methotrexate, infliximab, and anakinra. She did not tolerate cyclosporine A and developed macrophage activation syndrome after starting treatment with etanercept.

Six and a half years after disease onset she presented with symptoms of nasal obstruction and pain without clinical features of an infection and with no history of trauma. On examination her nasal septal mucosa had hemorrhagic crust and she had a moderate-size anterior septal perforation (Figure 1). At that time the systemic features of her disease were well controlled with oral prednisone (25 mg/day in 2 divided doses), but she had persistent polyarthritis and developed a vasculitic rash on her thighs. Laboratory investigations showed ESR 79 mm/h, hemoglobin 112 g/l, WBC count 17.9 x 10⁹/l, and platelet count 222 x 10⁹/l. Computer tomography (CT) of her paranasal sinuses revealed only minimal mucosal thickening in the left maxillary and the sphenoid sinuses. High resolution CT of her chest showed no evidence of pulmonary involvement.

One month after the diagnosis of nasal septal perforation she presented with a second episode of macrophage activation syndrome and had a persistent vasculitic rash on her thighs. Skin biopsy revealed small-vessel neutrophilic vasculitis with granular staining of the dermoepidermal junction basement membrane for IgA and IgM. All serum autoantibody tests including antineutrophil cytoplasmic antibodies (ANCA), antinuclear antibodies (ANA), rheumatoid factor (RF), anti-double stranded DNA antibodies

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We describe 3 patients with persistent SJIA/AOSD who developed symptomatic nasal septal perforation during the course of their disease. The presenting nasal symptoms were obstruction, pain, whistling, or epistaxis. In 2 patients, perforation occurred within the first year from disease onset and in one patient after 6.5 years of disease. All patients had experienced septal perforation during an active phase of the disease and one patient during an inactive phase of the disease while taking medication.

Perforation of the nasal septum is uncommon in children and most cases are secondary to trauma or infection, which were absent in our patients. All our patients had normal or elevated levels of IgA antibodies, normal blood glucose levels, and normal thyroid function tests. Since SJIA/AOSD is a rare disease, accounting only for 10%–20% of all juvenile idiopathic arthritides, the coincidental occurrence of nasal septal perforation in 3 patients is highly unlikely.

The etiopathogenic mechanisms leading to nasal septal perforation in SJIA/AOSD are not known, but in one case (Patient 1) we suspect that perforation was associated with vascular inflammation. In that patient, nasal septal perforation developed concurrently with vasculitic rash and preceded by 1 month an overt disease flare with macrophage activation syndrome. The vasculitic component of the disease was confirmed by skin biopsy, which revealed small-vessel neutrophilic vasculitis. Biopsy from the rim of the septal perforation was not performed, as this investigation seldom adds useful information or alters clinical management in patients with vasculitis and the patient was reluctant to have this procedure.

Vascular inflammation is not a characteristic pathological process in patients with SJIA/AOSD; however, vasculitis has been reported in patients with severe forms of the disease. Elevated levels of von Willebrand factor (Factor VIII-related antigen), which is released from endothelial cells and presumably reflects the presence of vascular endothelial injury, have been reported in patients with SJIA. Patients in our series did not exhibit clinical and/or laboratory fea-
tures of Wegener’s granulomatosis and chest radiography/CT scan showed normal pulmonary parenchyma.

Several other etiopathogenic mechanisms of nasal septal perforation have been proposed in rheumatic diseases, including local vasospasm following exposure to cold inspired air and increased tendency to infection because of corticosteroid administration\(^6\)\(^,\)\(^13\). None of our patients had Raynaud’s phenomenon or other features of local vasospasm. Regarding corticosteroid therapy, all our patients were on longterm therapy with high-dose corticosteroids, but there was no evident increase in frequency of upper airway infections. Although septum perforation is a well known complication of therapy with intranasal topical steroids in patients with allergic rhinitis\(^14\), there are no reports of nasal septal perforation resulting from systemic corticosteroid use.

In summary, nasal septal perforation may develop as a rare complication of SJIA/AOSD and can be considered as part of the clinical spectrum of the disease. All patients in our series developed symptomatic perforation and had a persistent course of SJIA/AOSD requiring treatment with high dose corticosteroids. In one case the nasal septal perforation was associated with vasculitis.

REFERENCES