Case Report

Nasal septal perforation in pregnancy case report: A family medicine perspective

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Abstract

A pregnant woman in her early 30s presented to her family medicine doctor with a nasal septal perforation and a history of past cocaine use. This case required careful evaluation to distinguish between potential causes, including autoimmune vasculitis and drug-induced damage. Management was tailored to her pregnancy, emphasizing conservative nasal care and multidisciplinary support. With cessation of cocaine use and supportive treatment, the patient's nasal condition stabilized. This case highlights the diagnostic complexity of septal perforations and reinforces the importance of identifying cocaine-induced pathology, which in this case avoided unnecessary immunosuppression.

Keywords: Cocaine, nasal septal perforation, pregnancy, vasculitis

Introduction

Nasal septal perforation is a full-thickness defect of the septum that creates an abnormal communication between both sides of the nasal cavity. It commonly occurs in the anterior cartilaginous portion of the septum and can lead to symptoms such as crusting, whistling, epistaxis, nasal obstruction, and less commonly hyposmia or anosmia, sinusitis, severe oral–facial pain, and altered sensitivity.[1,2] In severe cases, loss of septal support can result in a saddle-nose deformity, which carries significant cosmetic and functional implications.

Septal perforations can arise from a broad spectrum of pathologies, including trauma, intranasal drug use, autoimmune diseases, inflammatory conditions, infections, neoplasms, or idiopathic.[1] Diagnosing the exact aetiology of a septal perforation can be challenging, as several causes may produce similar clinical presentations. With written consent from the patient, we present a case of septal perforation occurring during pregnancy, an uncommon clinical scenario that introduced unique diagnostic and management challenges.

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Case History

A woman in her early 30s, in the first trimester of pregnancy, presented to her family medicine doctor appearing visibly anxious. She described an unsettling incident that occurred one week earlier: while blowing her nose, a small piece of blood-stained fleshy material fell out. Since that incident, she had developed bilateral nasal blockage, runny nose, and crusting. She denied any nasal trauma or nasal surgery. She reported no systemic symptoms or any other organ-specific complaints. On questioning about possible irritant exposures, she at first hesitated but then admitted to intranasal cocaine use. She claimed her last use was over a year ago. She was a nonsmoker at presentation, having ceased tobacco and alcohol use upon learning of her pregnancy. Her past medical history was unremarkable, and she was not on any long-term medications. There was no external

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nasal deformity. Anterior rhinoscopy (examination of the nasal cavity with a speculum and light) revealed a septal perforation in the anterior part of the nasal septum.

She was referred to the ear, nose, and throat (ENT) clinic, where she underwent a nasal examination with a flexible fibreoptic nasendoscope. The perforation measured 1 cm in diameter, with mildly inflamed mucosal edges. The remaining nasal cavity and head and neck examination were unremarkable.

The finding of a nasal septal perforation presents important diagnostic and management considerations for family medicine doctors, which will be explored below in an integrated discussion.

Discussion

Investigations

Initial investigations are aimed at elucidating the underlying cause of the septal perforation. These may include urine analysis (e.g., urine dipstick, screening for cocaine), blood tests (including autoimmune and inflammatory markers), imaging (such as chest radiography and computed tomography), and microbiological sampling (e.g., swab for culture). The choice of investigations is typically guided by clinical findings and the suspected underlying pathology [Table 1]. A proposed diagnostic algorithm for selecting initial investigations is outlined in Figure 1.

Table 1: Examination of a septal perforation

Examination	Clinical signs
External nose	Saddle-nose deformity, skin ulceration, and soft-tissue defect are signs of significant tissue necrosis caused by cocaine-induced pseudo-GPA or malignancy. Paraesthesia of the cheek indicates maxillary nerve infiltration, and may indicate malignancy or invasive fungal infection
Internal nose	Identifying the perforation can be aided by placing a cotton wool ball in one nostril and looking through the other nostril to help determine the site and size of the perforation. Signs of severe inflammation include crusting, contact bleeding, and diffuse erythema and swelling. Signs of infection include mucopurulent discharge. Signs of malignancy include a mass and blood-stained discharge. In children, it is pertinent to exclude a foreign body
Eyes	Diplopia, restricted eye movements, decreased visual acuity, and proptosis would be concerning of a malignant process or invasive fungal infection
Oral cavity	Palatal perforation resulting in oro-nasal fistula can occur in cocaine induced pseudo-GPA, IgG4-related disease, vasculitis, TB, invasive fungal infection, and malignancy
Neck	Palpate for lymphadenopathy, which indicates an inflammatory, infective, or malignant process
Neurological	CSF rhinorrhoea, meningism, and altered mental state may occur due to anterior skull base erosion from invasive fungal infection, vasculitis, or malignancy
General systems examination	Inspection for skin rashes, and examine the respiratory system if systemic inflammatory or autoimmune conditions, or TB are suspected

GPA=Granulomatosis with polyangiitis, IgG4=Immunoglobulin G4-related disease, TB=Tuberculosis

In the ENT clinic, the patient's urine toxicology screen tested positive for benzoylecgonine (a cocaine metabolite). This test indicates that she had used cocaine at least within the previous two weeks,[3] despite her claim that it was over a year ago. It is common for cocaine use to be underreported or denied by patients, and therefore, self-reporting is unreliable.[3,4]

A full blood count, inflammatory markers (C-reactive protein), renal function, and an autoimmune serological screen were sent, considering the differential of vasculitic disease. Urinalysis was performed for hematuria or proteinuria that might suggest renal vasculitis. A nasal swab for microbiology culture was not obtained since there was no purulent discharge. Only perinuclear anti-neutrophil cytoplasmic antibody (p-ANCA) titre was positive (>1:80). This result raised the possibility of a vasculitic process. Interestingly, when cocaine is adulterated with levamisole, it can provoke an ANCA-positive ENT pseudo-granulomatosis with polyangiitis (GPA), which closely mimics true ANCA-associated vasculitis.[5,6] Levamisole is an anti-helminthic used in veterinary medicine, and is frequently added to cocaine as a cutting (mixing) agent to add bulk and potentiate euphoria by increasing brain dopaminergic activity.[5]

Differential diagnosis

Ultimately, the two leading possibilities were primary nasal GPA versus cocaine-induced ENT pseudo-GPA, as they both present with nasal septal destruction, although GPA is often associated with (c-ANCA) positivity.[7] Distinguishing between these two is crucial, as management differs significantly. For example, a young woman with nasal perforation and ANCA positivity was erroneously diagnosed with primary GPA and subjected to unnecessary immunosuppressive therapy until her cocaine use was eventually disclosed.[8]

The collective results of the patient's investigations—a positive cocaine metabolite test, positive p-ANCA, unremarkable endoscopy aside from the perforation, and lack of systemic involvement, all supported the working diagnosis of cocaine-induced ENT pseudo-GPA. As the prevalence of cocaine use increases across Europe,[2,3] this condition is increasingly being recognized and should be considered by family medicine doctors to avoid delays in diagnosis and management.

In light of the patient's pregnancy, the ENT team elected to defer a nasal mucosal biopsy under general anesthetic (which would normally be considered to exclude fungal infection or malignancy), because the clinical scenario strongly pointed toward cocaine-induced damage. However, this strategy carried the potential risk of delaying a diagnosis of malignancy. An alternative option would be to perform a local anesthetic biopsy; however, the patient declined this. Instead, the patient was closely followed up in the ENT clinic to monitor for disease progression.

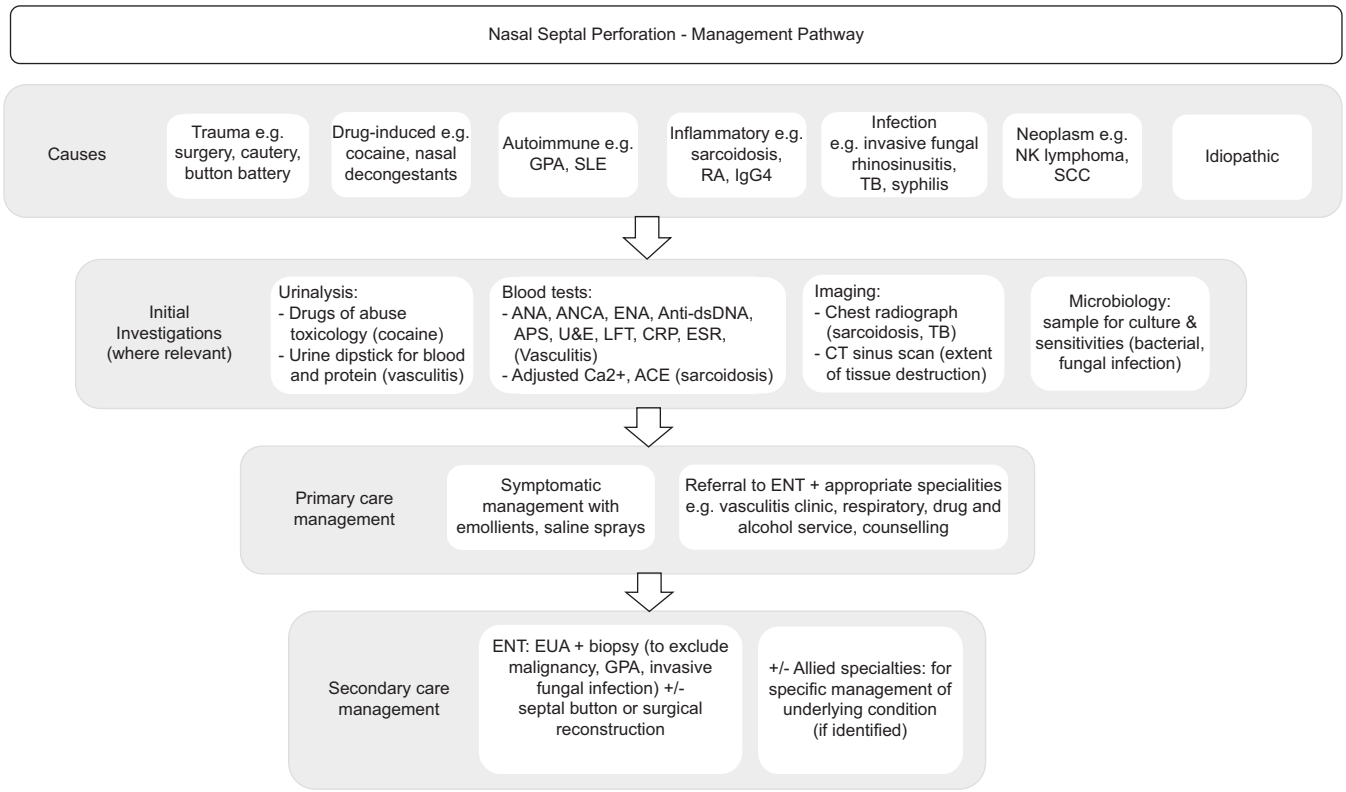

Figure 1: Algorithm outlining causes, investigations, and management of septal perforations. ACE = Angiotensin converting enzyme, ANA = Antinuclear antibodies, ANCA = Anti-neutrophil antibodies, Anti-dsDNA = Anti-double stranded DNA, APS = Anti-phospholipid syndrome, CRP = C-reactive protein, CT = Computed tomography, ENA = Extractable nuclear antigen antibodies, ESR = Erythrocyte sedimentation rate, EUA = Examination under anesthesia, GPA = Granulomatosis with polyangiitis, IgG4 = Immunoglobulin G4-related disease, LFT = Liver function tests, NK = Natural killer lymphoma, RA = Rheumatoid factor, SCC = Squamous cell carcinoma, SLE = Systemic lupus erythematosus, TB = Tuberculosis; U and Es = Urea and electrolytes

Treatment

The management options are outlined in Figure 1. In the case of our patient, initial treatment was conservative. She was started on regular saline nasal irrigation and petroleum jelly as a topical emollient to the inside of her nostrils daily. Given the common occurrence of *Staphylococcus aureus* colonization in nasal lesions, an antiseptic nasal ointment (such as Naseptin or Mupirocin) was prescribed for use during flare-ups of symptoms.[3]

In confirmed cases of cocaine-induced ENT pseudo-GPA, cessation of cocaine is the cornerstone of treatment and often leads to complete resolution of symptoms.[4] She was offered a referral to addiction support services to help maintain abstinence—see Table 2 for examples of such resources.[9] Immunosuppressive therapy is generally ineffective unless cocaine use is discontinued.[4] Current guidance advises against the use of immunosuppressants unless symptoms persist despite at least 3 months of abstinence, or if there is evidence of fulminant systemic vasculitis.[2,3]

Outcome and follow-up

At her six-week follow-up ENT review, she was adamant that she had stopped cocaine use during pregnancy. This was supported by clinical findings of improvement with a stable perforation size and clean edges, and no signs of inflammation or crusting. A repeat urine toxicology screen was negative for cocaine. Her p-ANCA titre had also decreased significantly (to a low-positive level titre of 1:20). Her nasal condition improved with conservative measures alone, demonstrating the value of watchful waiting in select cases.

Cocaine is known to have deleterious effects on pregnancy outcomes, including low birth weight, failure to thrive, prematurity, and placental abruption.[10] Recognizing these risks, she was referred to obstetricians and safeguarding professionals. The pregnancy was managed as high-risk due to her history of cocaine use and the development of gestational diabetes. She underwent serial ultrasound scans at 28, 32, and 36 weeks' gestation. These scans showed normal fetal growth parameters. The maternity safeguarding team maintained regular contact, offering support and ensuring compliance with prenatal care. She delivered a healthy term infant via induction without complications.

Conclusion

This case illustrates the unique challenges in diagnosing and managing a nasal septal perforation. Family medicine doctors play a pivotal role as they often are the first point of contact.

Table 2: Services and resources to help with cocaine addiction[9]

Treatment	Service/resources
Self-referral to the local National Health Service drug treatment service (in the United Kingdom)	https://www.nhs.uk/service-search/other-health-services/drug-treatment-services
• Cognitive behavioural therapy with a specialist drug counsellor or therapist • Couples therapy if the partner does not use cocaine • Positive reinforcement strategies	GP referral to drug and alcohol services and mental health services
Rehabilitation	Residential rehabilitation is usually only recommended via the drug service if the patients' situation is particularly severe or complicated
Patient support groups	"Cocaine Anonymous": https://cocaineanonymous.org.uk "Narcotics Anonymous": https://ukna.org
Online resources	"SMART" recovery": https://smartrecovery.org.uk

This includes taking a thorough and nonjudgmental social history, maintaining a high index of suspicion for cocaine, initiating appropriate early investigations, and coordinating referral to appropriate services. The key to treatment in these cases is addressing not only the nasal lesion but also the addiction aspect of substance abuse.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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