CASE REPORT

Rhinosinusitis; A Potential Hazard of Nasogastric Tube Insertion

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ABSTRACT

The nasogastric tube has been used frequently for enteral feeding and as an intranasal oxygen catheter. This practice is however associated with complications. We present a case of rhinosinusitis and sepsis in a diabetic patient following the insertion of a nasogastric tube.

Physicians should be aware of sinusitis as a possible cause of sepsis in patients with nasogastric tube insertion.

INTRODUCTION

Rhinosinusitis is a common disease entity and based on duration of symptoms and signs, it has been classified into four sub-types namely acute, subacute, recurrent acute and chronic sinusitis[1]. This may be infective or non-infective. Various predisposing factors to rhinosinusitis have been documented in the literature[2]. A number of host factors predispose the patient to sinusitis and they include immunodeficiency, acetylsalicylic acid-asthma-polyposis triad, abnormal mucociliary clearance secondary to ciliary structural abnormalities, as in Kartagener's syndrome, or secretory disturbances, such as those in cystic fibrosis[3]. Nasogastric tube as is very often used in medical practice. In unconscious patients, prolonged nasogastric intubation is often necessary. The risks of complications following its uses are often underestimated and under-reported[4]. We present a case of nasogastric tube being a cause of acute rhinosinusitis in a diabetic patient.

CASE SUMMARY

A 32 year old male driver; a known diabetic patient who has not been compliant with his medications. He presented with a day history of sudden onset abdominal pain, associated with vomiting and altered sensorium. He lapsed into unconsciousness few hours after reporting in the hospital. There was no premorbid history suggestive of rhinosinusitis. A diagnosis of diabetic ketoacidosis was made. Blood glucose on admission was 557mg/dl. He was adequately re-hydrated with intravenous fluid and also commenced on insulin therapy. He had intranasal oxygen supplementation via a nasogastric tube inserted into the left nasal cavity. This was removed on the fourth day of admission after he regained consciousness. His blood glucose was now within normal limits. He subsequently developed fever which was associated with painful swelling around the left nasal cavity and left periorbital region, left mucopurulent nasal discharge and blockage. He was commenced on intravenous antibiotic (Ciprofloxacin and Metronidazole).

Examination revealed a young man, pyrexic; with left cheek swelling, periorbital oedema and swelling of the left side of the nose. There was left mucopurulent nasal discharge with mucosa hyperemia and engorged inferior turbinate. The left nasal cavity was not patent.

Plain x-ray of the sinuses shows opacity of the left maxillary antrum.

Screening for Human Immunodeficiency virus was negative.

Microscopy, culture and sensitivity of the left nasal swab revealed no organism and yielded no growth.

The patient was managed conservatively with steam inhalation, naris argotone (mixture of pseudoephedrine and silver nitrate) and analgesics. His clinical condition improved steadily, the blood glucose level remained within normal limit and he was subsequently discharged home.

DISCUSSION

Rhinosinusitis of viral origin leads to inflammatory changes and retained secretions which readily lead to bacterial superinfection.[5] Sinus drainage and ventilation of the paranasal sinuses are dependent on the patency of the osteomeatal complex[2]. Nasal foreign bodies such as nasogastric tubes, nasotracheal tubes and nasal packs could result in the blockage of the osteomeatal complex thereby impeding sinus drainage[6]. This will cause stasis of secretions and reduced oxygen tension with resultant superimposed infection and subsequently, pus accumulation within the sinus[5]. The involvement of the sinus may remain undetected without radiological assistance. This may serve has a focus of infection in sepsis that may be missed[7].

The intranasal oxygen catheter in our patient might have irritated the left nasal mucosa with resultant

inflammation and local infection. This infection might have progressed and spread to the maxillary antrum in the patient because of depressed immunity due to the diabetes.Another possibility could be a mechanical obstruction of sinus drainage pathways by this tube or the inflammed nasal mucosa. The source of fever in this patient was the rhinosinusitis.

This disease is usually diagnosed clinically and confirmed with radiological investigation especially computerized tomography (CT) scan which is more specific and sensitive than plain x-rays of the paranasal sinuses. In some instances, nasal symptoms might not be present and it is only on CT scan or plain X-rays that the diagnosis of sinusitis is made[8].

CONCLUSION

Nasal intubation could predispose to rhinosinusitis especially in immunocompromised patients. The sinuses should be considered as a focus of infection in every unconscious patient who develops fever following intranasal intubation.

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