CASE REPORT

Creeping through the sinuses—unusual intrusion of ascariasis in the nasal cavity of a young female: a case report

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Abstract

Ascaris lumbricoides, a prevalent nematode affecting humans, frequently infests the gastrointestinal tract but can also be seen in atypical locations such as the middle ear, nose, epiglottis, and maxillary sinuses. Herein, we present the case of a three-year-old baby girl from a rural background, managed at the Department of ENT, Chaudhary Mohammad Akram Teaching & Research Hospital, Lahore. She presented with 15-day history of unilateral nasal blockage and repugnant nasal discharge from the right nostril. A general physical examination showed a vague firm to hard swelling along the right lateral nasal wall, enlarged right maxillary sinus, and infra-orbital region. Radiographic imaging confirmed a hazy right maxillary sinus. The nasal cavity contained mortified pale-yellow material, and creamy discharge from the maxillary ostium. Surgical exploration revealed no foreign bodies.

Key Words: Ascaris lumbricoides, Maxillary sinusitis, Nasal blockage.

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Introduction

Ascaris lumbricoides (ascariasis) represents one of the prevalent nematodes affecting the gastrointestinal tracts of humans and animals, like sheep, cattle, and pigs.[1] It is prevalent worldwide; however, prevalence is higher in warm tropical regions such as the Middle East and South America. The transmission and completion of the life cycle of the parasite relies on poor hygienic and sanitary conditions commonly seen in underdeveloped nations and impoverished rural communities.[2] Children face a higher risk due to limited personal hygiene practices. The principal mode of transmission is ingestion of eggs via the faecal-oral route. After ingestion, the larvae hatch in the small intestine and migrate through the liver and heart, reaching the lung alveoli in one to seven days. Subsequently, these larvae navigate the bronchi, ascend into the trachea, and eventually reach the small intestine, where they mature, lay eggs, and exit through the stool, thus completing their life cycle.[1-2]

An estimated 1.2 billion people are infected globally with a mortality rate of 20,000 per year.1 An extensive literature search showed varying prevalence rates and sources in Pakistan highlighting ascariasis in urban and peripheral remote areas. A study conducted in Malakand Division by Khan Wet al. reported a 1.25% prevalence in school children, while Ali S. A. et al. reported 0.88% contaminated faecal samples from children in urban areas of Lahore.[3,4] Luqman M. et al. identified ascaris eggs in the recreational freshwaters in Quetta.[5]

Ascariasis symptomatology depends on the stage of the disease. In the early stages, it remains asymptomatic or can present as iron deficiency anaemia and mild abdominal discomfort. However, severe complications such as intestinal obstruction, perforation, and peritonitis can occur in children, necessitating prompt medical intervention.[5] Ascariasis in the nasal and paranasal sinuses is exceedingly rare, occasional instances involve roundworms becoming lodged in the nasal passages during coughing or regurgitation. The literature review revealed minimal cases of ascariasis involving nasal and paranasal sinuses.[6-9]

This paper presents a unique case of incidentally diagnosed right-sided nasal ascariasis in a three-year-old child confirmed via histopathological examination.

Case report

A three-year-old girl from rural area was brought to the ENT Department, Chaudhary Mohammad Akram Teaching & Research Hospital, Raiwind Road, Lahore, with right-sided nasal obstruction and malodorous bloody nasal discharge. The parents had been observing right-sided nasal swelling for the past 15 days. The rest of her medical history was unremarkable. The child was conscious, although uncooperative, and displayed irritability, and had a shaggy and pale appearance at presentation. Additionally, the family's hygiene was noted to be subpar.

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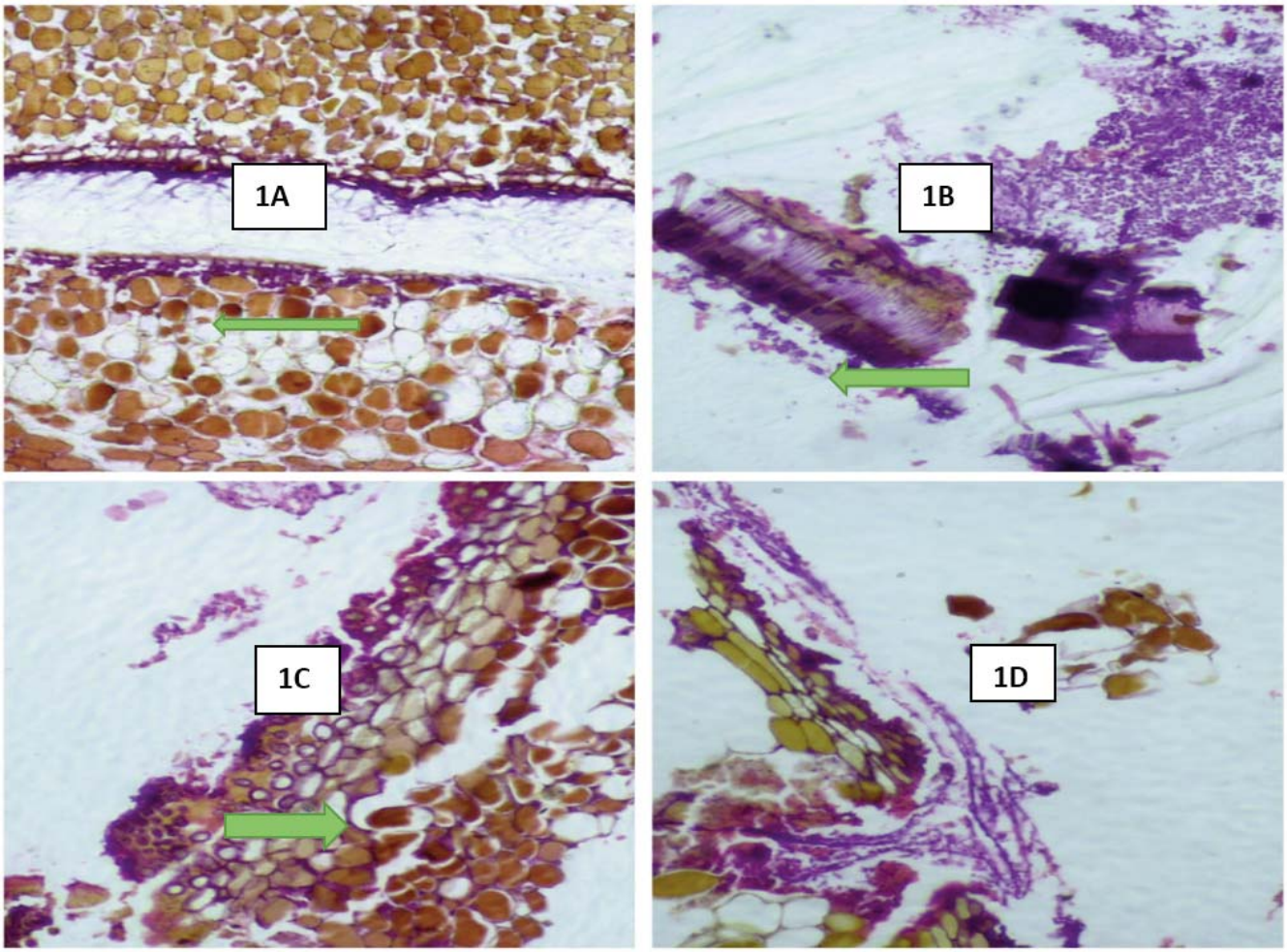

Figure-1(A-D): H&E-stained tissue sections showed hyalinised and calcified fragmented body parts, cuticle, and hypodermis X 40. The tissue fragments show acute on chronic inflammatory infiltrate. (Highlighted by arrows).

Clinical examination of the nose showed a vague, firm to hard right-sided lateral nasal wall, right maxillary sinus, and infraorbital region swelling. Radiological examination revealed haziness in the right maxillary sinus, while the other paranasal sinuses appeared normal. The patient was further evaluated under general anaesthesia. The right nasal cavity was filled with thick decaying pale-yellow material, and creamy discharge from the maxillary ostium. Surgical exploration showed pus and necrotic tissue pieces, however, no foreign body was identified. Sinus irrigation with normal saline was carried out through a cannula. Intraoral inspection showed no notable abnormalities. Cervical lymph nodes were non-palpable. The patient had a smooth recovery post-procedure. Anti-helminthic treatment was advised for the patient and her family members, along with education on hand washing and overall family hygiene.

Grossly, there were multiple mortified pale-yellow fragments. The tissue fragments were submitted for histopathological tissue processing. Haematoxylin and Eosin-stained (H&E) sections showed predominantly hyalinised tissue and inflamed granulation tissue infiltrated by acute and chronic inflammatory infiltrates. Furthermore, evidence of calcified eggs and fragmented body parts, i.e. cuticle and hypodermis was seen which favoured morphology of ascariasis (Figures 1). The morphological features were correlated with findings of parasite and ova in stool by the in-house consultant microbiologist.

Discussion

Ascariasis is prevalent in the gastrointestinal tract, however, involvement of the nose, paranasal sinuses, and respiratory tract is rare. Only five cases of children with ascariasis in the respiratory tract have been reported globally.[5, 6] On extensive literature review, sparse cases had been reported in the nasal cavity, paranasal sinuses,

and respiratory tract during the past century. The first-ever case involved a 14-year-old girl was documented by H. Burger in 1918. In 1949, Oschner et al. reported a sudden death from laryngeal obstruction, and, in 1997, Naravane et al. reported six mature Ascaris worms in the paranasal sinuses.[6]

The demographic distribution of the ascariasis infestation was similar to other authors; however, pathological sites were unique. The current case involved a paediatric patient and various authors around the globe have also reported paediatric patients involving rare sites such as the middle ear, pancreas, and oropharynx. This case involved a three-year-old female child, while Saha K. L. et al. reported a nine-year-old girl and Saraf A. et al. reported a two-year-old baby boy.[6,7]

The current study describes a unique site involving the right nasal cavity and right maxillary sinus similarly reported by Saha KL et al. a 15cm long ascaris in the right maxillary sinus.[6] Other studies with unique sites include those by Saraf A. et al. who reported a peri-epiglottic region and Smadeanu R. et al. who reported acute pancreatitis in Downs syndrome.[6,8] Gan R. W. et al. and Sarkar S. et al. from India reported the middle ear as a unique presentation.[9,10]

Recently, there has been an interest in prevention and management of ascaris infestation including patient relocation, avoiding contact with manure, proper hygiene, and education. WHO is also working to decrease the impact and burden.[11]

Conclusion

The typical site of Ascariasis infestation is gastrointestinal tract; however, the index case study highlights the unusual sites of infestation aligned with the patient's history and clinical symptoms necessitating medical intervention. It is crucial to emphasise personal hygiene practices, especially among children in our region to mitigate the risk of infestation via faecal oral transmission.

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References

1. Mukhopadhyay NN. Evaluation, diagnosis and treatment of ascariasis: an updated review. Roundworms-A survey from past to present. Intech Open. 2023; 25:1-84. doi.org/10.5772/intechopen.109147.
2. Mewara A, Kanaujia R, Malla N. Extra-intestinal complications of Ascaris lumbricoides infections in India: a systematic review and meta-analysis. Trans R Soc Trop Med Hyg. 2023; 117:765-72. doi.org/10.1093/trstmh/trad033.
3. Khan W, Panhwar WA, Mehmood SA, Ahmed S, Ahmed MS, Khan N, et al. Pinworm infection in school children of four districts of Malakand region, Khyber Pakhtunkhwa, Pakistan. Braz J Biol. 2021; 82. doi.org/10.1590/1519-6984.238769.
4. Luqman M, Awan MU, Muhammad S, Daud S, Yousafzai A, Arooj F. Microbial pollution in inland recreational freshwaters of Quetta, Pakistan: an initial report. J Water Health. 2022; 20:575-88. doi.org/10.2166/wh.2022.291.
5. Ali SA, Niaz S, Aguilar-Marcelino L, Ali W, Ali M, Khan A, et al. Prevalence of Ascaris lumbricoides in contaminated faecal samples of children residing in urban areas of Lahore, Pakistan. Sci Rep. 2020; 10:21815. doi: 10.1038/s41598-020-78743-y.
6. Saraf A, Shekhawat RS, Setia P, Meshram VP, Kanchan T, Ateriya N. Sudden death in a two-year-old child: role of ascaris infestation and other possibilities. J Indian Acad Forensic Med. 2021; 43:188-90. doi.org/10.5958/0974-0848.2021.00047.6.
7. Saha KL, Rashid MS, Jamtsho S, Talukder DC. Ascaris lumbricoides in the right maxillary sinus: a rare case. J Dhaka Med Coll. 2019; 28:126-8. doi.org/10.3329/jdmc.v28i1.45769.
8. Smădeanu R, Leşanu G, Nicolaescu R, Georgescu C, Dima V, Simionescu A, et al. Ascaris "download" as a cause of acute recurrent pancreatitis in a child. Romanian J Med Pract. 2021; 16:79. doi.org/10.37897/RJMP.2021.S4.19.
9. Gan RW, Gohil R, Belfield K, Davies P, Daniel M. Acute airway obstruction by Ascaris lumbricoides in a 14-month-old boy. Int J Paediatr Otorhinolaryngol. 2014; 78:1795-8. doi.org/10.1016/j.ijporl.2014.07.031.
10. Sarkar S, Sadhukhan M, Purakayastha K, Ghosh A, Ghosh S, Raychowdhury R, et al. An unusual foreign body in the ear of a child. Indian J Paediatr. 2011; 78:755-6. doi.org/10.1007/s12098-010-0345-1.
11. De Lima Corvino DF, Horrall S. Ascariasis. In: StatPearls. Treasure Island: StatPearls Publishing, 2023.

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FS: Identification of the case.
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