Case Report

Transitional cell carcinoma of the sinonasal tract: A rare entity

Madhumita Mondal, Aniruna Dey, Jayeeta Bandyopadhyay, Debjit Banerjee

Department of Pathology, B.R. Singh Hospital and Centre for Medical Education and Research, Eastern Railway, Sealdah, Kolkata, West Bengal, India

ABSTRACT

Malignant sinonasal carcinomas are a rare entity comprising less than 1% of all cancers and around 3% of all head and neck malignancies seen in humans. Among these 15-20% are transitional cell carcinoma also known as non keratinizing carcinoma of sinonasal tract. We are reporting the case of a 45 years female with history of nasal obstruction and epistaxis. A contrast enhanced computed tomography (CECT) was done which showed mucosal thickening in the right nasal cavity. Endoscopy assisted biopsy was taken which revealed non keratinizing carcinoma (transitional type). Very few reported cases of this type of malignancy was found. A possible reason could be multiple synonyms like cylindrical cell carcinoma, Schneiderian carcinoma and transitional cell carcinoma.

Key words: Non keratinizing carcinoma, transitional cell carcinoma, sinonasal carcinoma

INTRODUCTION

Nonkeratinizing carcinoma (NKC), comprising of about 15-20% of all malignant sinonasal tumors, is a rare entity, with very few cases reported so far.[1] According to the World Health Organization (WHO) classification, it has many synonyms, including, Schneiderian carcinoma, transitional cell carcinoma, cylindrical cell carcinoma, Ringertz carcinoma, and respiratory epithelial carcinoma.[2]

CASE REPORT

A 45-year-old female, non-smoker, presented with progressively worsening right nasal obstruction for the last one year and recurrent epistaxis for the last one month. There were no other symptoms. The clinical examination revealed a deviated nasal septum and congested nasal mucosa in the left side. Contrast-enhanced computed tomography (CECT) of the nose and paranasal sinuses revealed, mucosal thickening of the left nasal cavity, without any mass or abnormality in any of the paranasal sinuses [Figures 1 and 2]. The nasopharynx was also free from tumor. Endoscopy-assisted removal of the mucosal thickening was done. Histopathology showed the tissue partly lined by respiratory epithelium, with the underlying stroma infiltrated by malignant cells, forming islands and ribbon-like patterns [Figures 3-6]. The individual cells had a high nuclear: cytoplasmic (N: C) ratio, with pleomorphic, hyperchromatic nuclei and prominent nucleoli. Numerous mitoses were seen. Occasional foci of keratinization were also seen. She is now under medical follow-up.

Access this article online	
Quick Response Code:	Website: www.ccij-online.org
	DOI: 10.4103/2278-0513.149043

DISCUSSION

Nonkeratinizing squamous cell carcinoma (SCC) or transitional cell carcinoma of the sinonasal tract is a rare entity. The annual incidence of malignant sinonasal carcinoma is 3.5 per 100,000 population.[3] Of this 15-20% is transitional carcinoma.[1] According to the WHO classification, it has many synonyms including, Schneiderian carcinoma, cylindrical cell carcinoma, Ringertz carcinoma, and respiratory epithelial carcinoma,[2] as the tumor is composed of malignant proliferating cells derived from the sinonasal respiratory (Schneiderian) epithelium.[4] The name cylindrical cell carcinoma was first coined by Ringertz in 1938,[5] and was recommended as the preferred term by Shanmugaratnam in the WHO classification of 1991.[6]

Address for correspondence: Dr. Debjit Banerjee, 120/1 K.N. Mukherjee Road, P.O-Talpukur, Dist-24 PGS (N), Kolkata - 700 123, West Bengal, India. E-mail: banerjee.deb86@gmail.com

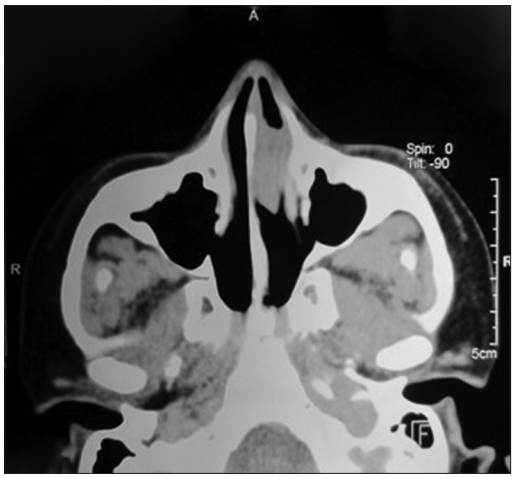

Figure 1: Contrast-enhanced computed tomography of the paranasal sinuses. Mild mucosal thickening with opacification is noted in the left nasal cavity, centrally, with mild deviation of the nasal septum to the right side. The inferior turbinate appeared hypertrophied

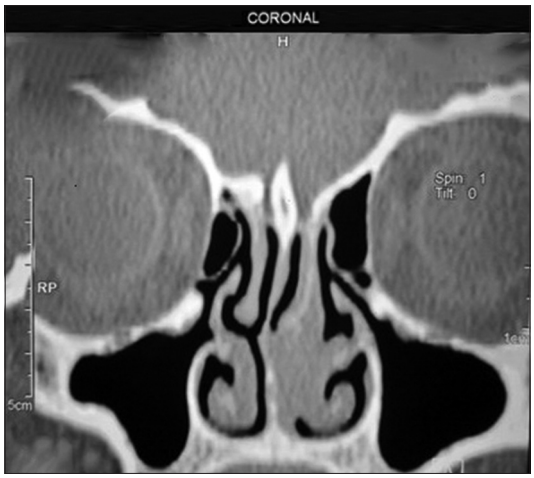

Figure 2: Contrast-enhanced computed tomography of the paranasal sinuses. Mild mucosal thickening with opacifi cation is noted in the left nasal cavity. The inferior turbinate appeared hypertrophied

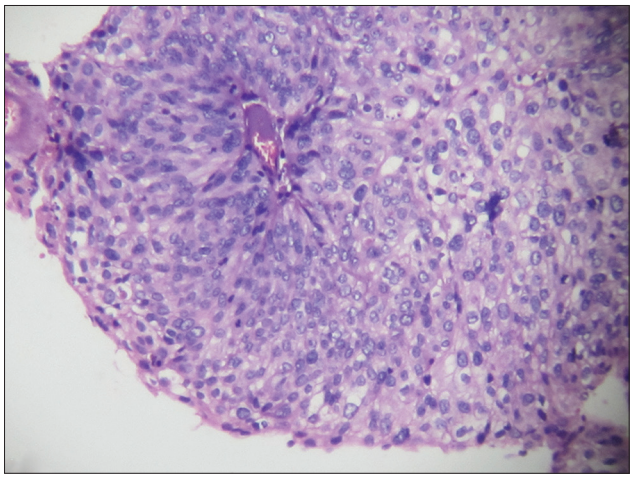

Figure 3: H and E stain, x100. Section shows papillary projections with a fibrovascular core formed by multiple layered pleomorphic, nonkeratinizing squamous cells, with hyperchromatic nuclei and increased mitotic count

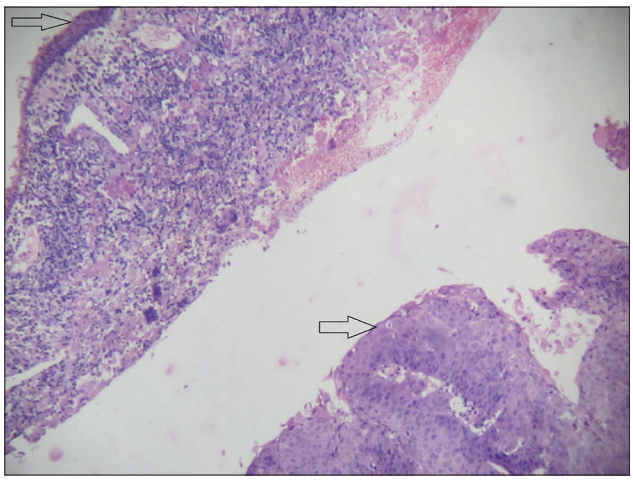

Figure 4: H and E stain, x40. Section shows thetissue lined by a respiratory type of epithelium (marked with arrow) and papillary projections formed by nonkeratinizing squamous cells (marked with arrow)

Sinonasal carcinoma (Squamous cell carcinoma and adenocarcinoma) are strongly associated with environmental factors, including tobacco, alcohol, and occupational exposure (e.g. to heavy metal, nickel, and chromium), and with workers in the leather, textile, and wood industries.[2,7-10] Sinonasal tract malignancies most commonly affect the maxillary sinus (about 60%), followed by the nasal cavity (about 22%), ethmoid sinus (about 15%), and frontal and sphenoid sinuses (3%).[2,8-10] In this case, no association with the risk factors was found. A strong etiological relationship between nonkeratinizing carcinoma (NKC) and the human papilloma virus (HPV) has been suggested by some recent studies.[11] Many of these tumors show immunoreactivity for p16.[4]

Gross appearance of the tumor in most cases is that of an exophytic growth with a smooth or corrugated surface arising from the maxillary antrum or lateral nasal wall or ethmoid sinus.[12,13] In our case the gross appearance was that of mucosal thickening of the lateral nasal wall.

Nonkeratinizing carcinoma is listed by the WHO as a variant of SCC. Histopathologically, NKC is characterized by a plexiform or ribbon-like growth pattern, with papillary fronds of stratified cells, which at low magnification are often confused with inverted papilloma.[4] The tumor cells form palisading arrangements, perpendicular to the underlying basement membrane.[4] The cells show an atypical nuclear feature, with increased mitotic count.[4] The tumor usually shows pushing margins with focal infiltration of the stroma.[4] Foci of the squamous metaplasia are not uncommon, and when extensive, these tumors may be indistinguishable from SCC.[4] In addition, the term cylindrical cell carcinoma must be preferred to

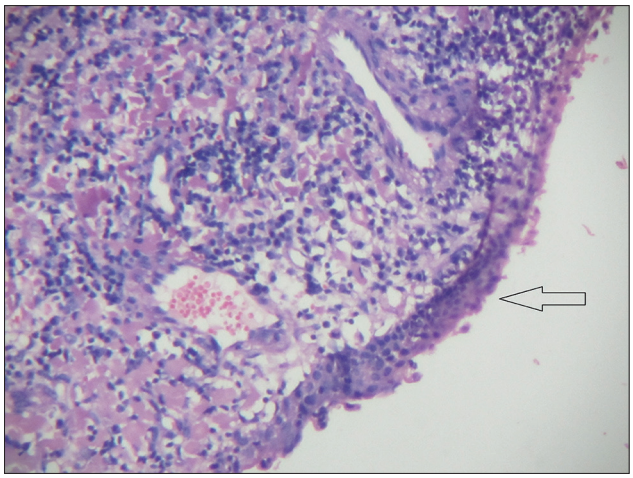

Figure 5: H and E stain, x100. Section shows the tissue lined by a respiratory type of epithelium (marked with arrow) along with dense inflammatory cell infiltrate in the subepithelial space

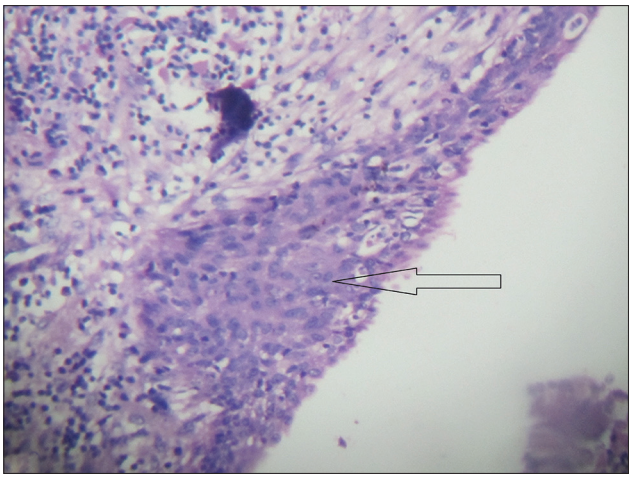

Figure 6: H and E stain, x100. Section shows the tissue lined by a respiratory type of epithelium with squamous metaplasia (marked with arrow)

nonkeratinizing squamous cell carcinoma, because 'pure' cylindrical cell carcinomas, without any squamous cell component, carry a better prognosis than conventional SCCs.[14] Although identified as nonkeratinizing, there are often small keratin pearls interspersed within the proliferations and some may form surface keratin that fills the cystic spaces.[2,15] Similar features were seen in our case.

If SCC is confined to the nasal cavity, the five- and ten-year survival rates are in the range of 80%. Involvement of the paranasal sinus adversely affects the prognosis.[2,9,10,16] Cervical lymph node metastasis develops in up to 20% of the patients, with rare distant metastasis.[2,10] Treatment depends on the tumor location and extent.[2] T1 and T2 nasal tumors are treated by surgical resection, while T3 and T4 tumors receive postoperative radiotherapy. Various surgical approaches like lateral rhinotomy or medial maxillectomy or an en bloc ethmoidectomy are done for superior and lateral nasal cavity carcinomas.[17] Paranasal sinus tumors are managed by radical en bloc surgical resection followed by radiotherapy.[8-10,16] Chemotherapy may be used as a neoadjuvant or postoperatively.[2] Our case underwent endoscopic lateral rhinotomy with a close follow-up.

CONCLUSION

Nonkeratinizing squamous cell carcinoma of the sinonasal tract is a very rare entity. Only few cases have been reported previously, which may be because it has many synonyms like, cylindrical cell carcinoma, Schneiderian carcinoma, and transitional cell carcinoma. In most of the reported cases, it is not associated with any risk factors and presents in young to middle-aged females, as progressive nasal obstruction. The prognosis is good in pure form and surgical resection followed by radiotherapy is the treatment of choice.

REFERENCES

1. Robin P, Powell DJ, Stansbie JM. Carcinoma of the nasal cavity and paranasal sinuses: Incidence and presentation of different histologic types. Clin Otolaryngol Allied Sci 1979;4:431-56.
2. Pilch BZ, Bouquot J, Thompson LD. Squamous cell carcinoma. In: Barnes L, Eveson JW, Reichart P, Sidransky D, editors. World Health Organization classification of tumors. Pathology and genetics of head and neck tumors. Lyon: IARC Press; 2005. p. 15-7.
3. Muir CS, Nectoux J. Descriptive epidemiology of malignant neoplasms of nose, nasal cavities, middle ear and accessory sinuses. Clin Otolaryngol Allied Sci 1980;5:195-211.
4. Prakash SB, Nishan. A rare malignancy of sinonasal tract- transitional cell carcinoma: A case report. J Evol Med Dent Sci 2013;2:6946-50.
5. Ringertz N. Pathology of malignant tumors arising in the nasal and paranasal cavities and maxilla. Acta Otolaryngol Suppl 1938;27:31-42.
6. Shanmugaratnam K. WHO histological typing of tumors of the upper respiratory tract and ear. Berlin, Heidelberg, New York: Springer; 1991, 2nd ed, p-3.
7. Luce D, Leclerc A, Bégin D, Demers PA, Gérin M, Orlowski E, *et al*. Sinonasal cancer and occupational exposures: A pooled analysis of 12 case-control studies. Cancer Causes Control 2002;13:147-57.
8. McNicoll W, Hopkin N, Dalley VM, Shaw HJ. Cancer of the paranasal sinuses and nasal cavities. Part II. Results of treatment. J Laryngol Otol 1984;98:707-18.
9. Hopkin N, McNicoll W, Dalley VM, Shaw HJ. Cancer of the paranasal sinuses and nasal cavities. Part I. Clinical features. J Laryngol Otol 1984;98:585-95.
10. Jackson RT, Fitz-Hugh GS, Constable WC. Malignant neoplasms of the nasal cavities and paranasal sinuses: A retrospective study. Laryngoscope 1977;87:726-36.
11. El-Mofty SK, Lu DW. Prevalence of high-risk human papillomavirus DNA in non-keratinising (transitional cell) carcinoma of the sinonasal tract. A distinct clinicopathologic and molecular disease entity. Am J Surg Pathol 2005;29:1367-72.
12. Osborn DA. Transitional cell growths of the upper respiratory tract. J Laryngol Otol 1956;70:574-87.

13. Osborn DA. Nature and behavior of transitional tumors in the upper respiratory tract. Cancer 1970;25:50-60.
14. Friedmann I, Osborn DA. Carcinoma of the surface epithelium (including ameloblastoma). In: Friedmann I, Osborn D, editors. Pathology of granulomas and neoplasms of the nose and paranasal sinuses. Edinburgh: Churchill Livingstone; 1982. p. 118-32.
15. Zarbo RJ, Torres FX, Gomez J. Nasal cavity and paranasal sinuses: Embryology, anatomy, histology and pathology. In: Pilch BZ, editor. Head and Neck Surgical Pathology. Philadelphia: Lippincott Williams and Wilkins; 2000. p. 80-156.
16. Carrau RL, Segas J, Nuss DW, Snyderman CH, Janecka IP, Myers EN, *et al*. Squamous cell carcinoma of the sinonasal tract invading the orbit. Laryngoscope 1999;109:230-5.
17. Thompson LD. Sinonasal carcinomas. Curr Diagn Pathol 2006;12:40-53.

Cite this article as: Mondal M, Dey A, Bandyopadhyay J, Banerjee D. Transitional cell carcinoma of the sinonasal tract: A rare entity. Clin Cancer Investig J 2015;4:50-3.

Source of Support: Nil, **Conflict of Interest:** None declared.