

HPV-related multiphenotypic sinonasal carcinoma (HMSC): Clinical insights into an emerging pathology

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BACKGROUND

- Sinonasal malignancies are rare and heterogeneous
- Squamous cell carcinoma is the most common sinonasal primary malignant tumor
- High-risk HPV plays a growing role in head and neck carcinogenesis, 20-25% of sinonasal carcinomas demonstrate high risk HPV infection
- HMSC (previously termed HPV-related carcinoma with adenoid cystic carcinoma (ACC)-like features) is a newly described entity with histologic overlap with ACC.
- High risk HPV subtypes, unsurprisingly, are ubiquitous with HMSC, with the most common being HPV-33
- Data to date suggest it is a locally destructive tumor, but relatively indolent with low potential for distant metastasis and favorable survival
- Underreported, approximately 100 cases reported worldwide.

STUDY AIM: Characterize presentation, management, and outcomes of HMSC at a single tertiary center.

METHODS

- Retrospective review (2013–2025).
- Adult patients with pathologic confirmation and follow-up.
- Collected demographics, stage, treatment, outcomes.
- Descriptive statistics only.

DISCUSSION

Presentation

HMSC is a recently described entity and outcomes and recommendations for management are limited. It is a distinct entity from SCC and ACC. Some provisional recommendations can be made regarding this pathology utilizing this case series and review of the previous literature. Given that HMSC appears to be virally driven, it makes sense for the nasal cavity to be the first site affected by exposure, which is confirmed by attachment site in our group. This may also explain why patients present at a relatively early stage given the symptomatic nature of masses in the nasal cavity. No data has been reported on vaccination status of patients diagnosed with HMSC.

Treatment

All patients in our cohort underwent endoscopic resection of tumor. Given our series and previously published cases, a treatment strategy of resection followed by radiation in the setting of higher grade disease, positive margins, or adverse features seems to be prudent. The rate of regional metastasis appears low and thus cervical lymphadenectomy can be avoided in the absence of clinical disease which is a similar treatment strategy in ACC.

Outcomes

Overall, outcomes both in our study and the existing literature appear favorable. In our cohort study, all patients remain alive and without evidence of disease with a median clinical follow up of 19 months. Previous studies have noted that no recurrences in their cohort had occurred before 23 months, so it is possible that this cohort has simply not had a long enough time from treatment to assess their long term response. Longer term survival remains favorable, with a report of 85.3% of patients alive at a mean follow up of 29 months. Local recurrence does seem to be the most common with one analysis noting a nearly 40% locoregional recurrence rate. Recurrence has been noted as late as 30 years after the index treatment in a case that was previously diagnosed as ACC. Taken together, long term, if not lifelong, surveillance is indicated in these patients with both endoscopy and imaging.

RESULTS

- Nine patients identified.
- Predominant involvement of central nasal cavity.
- All patients treated with endoscopic resection.
- One intraoperative CSF leak (T4a cribriform invasion), repaired intraoperatively.
- No postoperative surgical complications.
- No HPV typing performed
- Median follow-up: 19 months (range 5–70).
- 67% had ≥12 months follow-up.
- No recurrences or mortalities observed.

CONCLUSIONS

- HMSC is a rare and recently characterized sinonasal malignancy.
- Patients often present at earlier stages with central nasal cavity tumors.
- Prognosis appears favorable compared with other sinonasal malignancies.
- Further work is needed to define optimal treatment paradigms and the role of HPV vaccination

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TABLE 1: DEMOGRAPHICS AND EARLY DIAGNOSTIC COURSE

| Patient | Ag | Sex | Smoking status | Presenting symptom | Symptom onset to biopsy (mo) | Pre-treatment stage |
|---------|----|-----|----------------|--------------------|------------------------------|---------------------|
| 1 | 76 | M | Never | Epistaxis | 3 | T1 |
| 2 | 75 | M | Former | Nasal obstruction | 12 | T2 |
| 3 | 84 | M | Never | Epistaxis | 1 | T1 |
| 4 | 58 | M | Former | Nasal obstruction | 7 | T3 |
| 5 | 91 | M | Current | Epistaxis | 2 | T2 |
| 6 | 56 | F | Former | Nasal obstruction | 3 | T2 |
| 7 | 55 | M | Never | Epistaxis | 1 | T3 |
| 8 | 70 | M | Never | Epistaxis | 1 | T3 |
| 9 | 56 | M | Former | Nasal obstruction | 3 | T4a |
| | | | | | Median 3 | |

TABLE 2: TREATMENT AND POST-OPERATIVE DETAILS

| Patient | Neoadjuvant treatment | Surgery | Attachment site | Margin status | PNI | Adjuvant treatment | Recurrence | Follow up (mo) |
|---------|-----------------------|---|-------------------------------|---------------|-----|--------------------|------------|----------------|
| 1 | | Maxillary antrostomy, ethmoidectomy, inferior turbinate resection | Inferior turbinate | - | no | | no | 19 |
| 2 | | Posterior septectomy | septum | + | no | RT, chemo | no | 9 |
| 3 | | Nasal floor tumor resection | Nasal floor | - | n/a | | no | 7 |
| 4 | | Maxillary antrostomy, ethmoidectomy, sphenoidotomy, frontal sinusotomy, middle turbinate resection | Middle turbinate | - | no | | no | 49 |
| 5 | | Resection of tumor from nasal floor, lateral nasal wall, and septum | Lateral nasal wall and septum | + | no | RT | no | 14 |
| 6 | | Maxillary antrostomy, inferior turbinate resection | Inferior turbinate | - | no | | no | 35 |
| 7 | | Medial maxillectomy, ethmoidectomy, frontal sinusotomy, sphenoidotomy, septectomy, middle turbinate resection | Posterior septum | - | n/a | RT | no | 28 |
| 8 | RT | Maxillary antrostomy, ethmoidectomy, sphenoidotomy, Draf III frontal sinusotomy | No residual tumor identified | - | no | | no | 5 |
| 9 | | Maxillary antrostomy, ethmoidectomy, sphenoidotomy, frontal sinusotomy, CSF leak repair | Skull base | - | no | RT | no | 70 |

PREOPERATIVE TUMOR IMAGES



(A) Attachment along the middle turbinate



(B) Attachment along the septum