**Nasal Cavity and Paranasal Sinus Cancer: Symptoms, Diagnosis, Treatment, and Care at Apollo Hospitals**

Nasal cavity and paranasal sinus cancer refers to cancers that start inside the nose (nasal cavity) or in the air-filled spaces around the nose (paranasal sinuses: maxillary, ethmoid, frontal, and sphenoid). These areas sit close to critical structures such as the eyes, optic nerves, skull base, and brain, so precise, multidisciplinary care is essential. Although these cancers are uncommon, many are curable—especially when detected early and treated by a coordinated team using modern imaging, surgery, advanced radiation, and tailored systemic therapy. This comprehensive article explains what nasal cavity and paranasal sinus cancer is, who is at risk, symptoms to watch for, how doctors diagnose and stage it, current treatments (endoscopic and open surgery, reconstruction, radiation, chemotherapy, targeted therapy, immunotherapy, and proton therapy in select cases), prognosis, prevention at Apollo Hospitals.

**Note:** This guide is educational and does not replace medical advice. Individual treatment should be directed by a head and neck/skull base oncology team.

**Overview: What Is Nasal Cavity and Paranasal Sinus Cancer and Why Early Detection Matters**

These cancers begin when cells lining the nasal passages or sinus cavities develop DNA changes and grow uncontrollably. Because early symptoms can mimic common sinus problems (allergies or sinusitis), some cases are found at a later stage. The nose and sinuses are close to vital structures, so timely diagnosis and precise planning can minimize complications and preserve vision, smell, and facial function.

Why early detection matters:

* Smaller tumors are easier to remove completely with lower risk to the eyes, brain, nerves, and teeth.
* Early treatment reduces the need for extensive surgery, complex reconstruction, and wide radiation fields.
* Prompt care improves control rates, preserves appearance and function, and shortens recovery.

How common is it?

* These are rare cancers compared with other head and neck tumors. The maxillary and ethmoid sinuses are the most commonly involved paranasal sites; the nasal cavity is also frequently affected.

**Types and Sites**

Understanding site and histology guides treatment and prognosis.

* Sites
  + Nasal cavity (inside the nose)
  + Maxillary sinus (cheek)
  + Ethmoid sinus (between the eyes)
  + Frontal sinus (forehead)
  + Sphenoid sinus (deep behind the nose)
* Common histologies
  + Squamous cell carcinoma (most common)
  + Adenocarcinoma (including intestinal‑type, often linked to wood dust exposure)
  + Sinonasal undifferentiated carcinoma (SNUC; aggressive)
  + Olfactory neuroblastoma (esthesioneuroblastoma)
  + Adenoid cystic carcinoma
  + Mucosal melanoma
  + Sarcomas and lymphomas (managed with specialized protocols)

**The exact type of cancer cells affects treatment options and outcomes.**

**Causes: Known or Suspected Contributors**

* Occupational exposures: wood dust (furniture, carpentry), leather dust, flour (baker's), nickel/chromium compounds, formaldehyde
* Tobacco smoke (active and secondhand), though less strongly associated than with oral/laryngeal cancers
* HPV is an infrequent driver in this region compared with the oropharynx; EBV may be involved in certain rare subtypes
* Prior radiation to the head and neck (rare)
* Chronic inflammation and sinus disease can complicate detection but are not typically direct causes

Most patients have no single identifiable cause; these cancers are not contagious.

**Risk Factors: Lifestyle, Genetic, Environmental, and Medical**

* Workplace exposures to wood/leather dust, flour, solvents, metals, or chemicals without adequate respiratory protection
* Long‑term tobacco exposure
* Male sex and older age (varies by type)
* Certain genetic or immune factors (less common)
* Prior head and neck radiation (rare)

Using protective equipment and ventilated workspaces, and avoiding tobacco, can lower risk.

**What Are the Symptoms of Nasal Cavity and Paranasal Sinus Cancer?**

Early symptoms resemble sinusitis or allergies; persistence and one‑sided (unilateral) symptoms are key clues.

Common early signs:

* Nasal blockage or congestion (often one‑sided)
* Persistent nasal discharge (sometimes blood‑streaked)
* Recurrent nosebleeds (epistaxis)
* Decreased or altered sense of smell

Progressive or concerning symptoms:

* **Facial pain or pressure (often one‑sided), numbness of cheek, upper teeth, or palate**
* Loose teeth or non‑healing dental socket in the upper jaw
* Swelling around the cheek, nose, or forehead
* Double vision, eye bulging, tearing, or vision changes
* Headaches, especially in the frontal or deep head region
* A mass inside the nose or visible on exam
* Neck lump (enlarged lymph node), though nodal spread is less common than in other head and neck sites

Any unilateral, persistent "sinus" symptom lasting longer than 4–6 weeks despite standard therapy deserves specialist evaluation.

**How Is Nasal Cavity and Paranasal Sinus Cancer Diagnosed?**

Accurate diagnosis pairs expert endoscopic examination with high‑resolution imaging and tissue sampling.

* Specialist examination
  + ENT/head and neck evaluation with nasal endoscopy to visualize the nasal cavity and middle meatus/ostia
  + Assessment of cranial nerves, eye movements, facial sensation, and dental status
* Imaging
  + Contrast‑enhanced CT of paranasal sinuses: maps bone erosion, dental roots, and relationship to the maxilla and skull base
  + MRI with contrast: defines soft‑tissue extent, **spread along nerves causing numbness or tingling**, orbital apex/optic nerve involvement, and intracranial/skull base extension
  + **PET‑CT and PET-MRI (available at select Apollo centers) for skull base cancers: identifies nodal/distant spread and assists radiation planning with greater precision**
* Biopsy (key step)
  + Endoscopic biopsy under local or general anesthesia from the most representative area
  + For vascular tumors or sites near critical structures, biopsy is planned carefully to minimize bleeding and risk
* Dental, ophthalmologic, and functional assessments
  + Dental evaluation (especially for maxillary sinus and hard palate involvement)
  + Baseline vision and ocular motility assessments if the orbit is at risk
  + Nutrition and speech/swallow baselines for supportive planning

A multidisciplinary tumor board integrates findings to craft the safest, most effective plan.

**Staging and Grading: What They Mean**

* Staging (TNM; AJCC site‑specific)
  + T (primary): considers tumor size, bone invasion (maxilla, palate, pterygoid plates, skull base), orbital contents involvement, and intracranial extension
  + N (nodes): presence, size, and laterality of neck lymph nodes
  + M (metastasis): distant spread (lung, bone, liver)
* Grading/histology
  + Cellular differentiation (well/moderately/poorly differentiated) and histologic subtype (e.g., SNUC vs adenocarcinoma) influence behavior and treatment

Why it matters:

* Stage and histology guide whether surgery, chemoradiation, or a combined approach is best.
* Specific routes of spread (perineural along infraorbital nerve, orbital invasion, skull base) drive surgical approach, need for reconstruction, and radiation fields.

**Treatment Options for Nasal Cavity and Paranasal Sinus Cancer**

Treatment is customized to site, stage, histology, and proximity to critical structures. The goals are cure, preservation of vision and cranial nerve function, restoration of form and breathing, and rapid return to daily life.

**Surgery**

Surgery is central for many resectable tumors, often followed by **radiation given after surgery to lower the chance of the cancer returning** based on pathology.

* Endoscopic endonasal resection
  + Minimally invasive removal through the nostrils using high‑definition endoscopes
  + Ideal for select nasal cavity/ethmoid/maxillary tumors without extensive anterior facial or orbital invasion
  + Benefits: less scarring, shorter recovery, precise visualization of skull base margins
* Open craniofacial or transfacial approaches
  + - Used when tumors involve the anterior skull base, orbit, frontal sinus, or require en bloc resection
    - May include lateral rhinotomy, midfacial degloving, Weber–Ferguson incisions, or craniofacial resection with neurosurgery
  + Maxillectomy and palate surgery
    - Partial or total maxillectomy for maxillary sinus cancers; reconstruction with free flaps (fibula, scapula, anterolateral thigh) or prosthetic obturators to restore speech and chewing
  + Orbital management
    - If only the bony wall or periorbita is involved, orbitsparing surgery plus adjuvant therapy may be possible
    - **If tumor invades extraocular muscles, globe, or orbital apex, removal of the eye may be necessary in some cases, though doctors always try to preserve vision whenever safely possible; reconstructive and prosthetic options are discussed compassionately**
  + Neck management
    - Selective neck dissection for clinically involved nodes; elective neck treatment varies by site and histology
  + Reconstruction
    - Microvascular freeflap techniques to rebuild palate, maxilla, nasal lining, and skin
    - Aim to restore nasal airway, speech (velopharyngeal competence), chewing, appearance, and tear drainage when needed

**Radiation Therapy**

Radiation is essential after surgery for most intermediate/high‑risk cases and as a primary modality for unresectable or select histologies.

* **Postoperative radiation (radiation given after surgery to lower the chance of the cancer returning)**
  + **Indicated for positive/close margins, spread along nerves causing numbness or tingling, bone/skull base involvement, orbital/periorbital spread, multiple/large positive nodes, cancer spreading outside lymph nodes**
  + **At Apollo, advanced techniques like IMRT/VMAT are standard. For select cases where tumors are close to the eyes, optic nerves, or brain, proton therapy at Apollo Proton Cancer Centre, Chennai, may be advised to deliver high radiation doses with less exposure to surrounding healthy tissue.**
* Definitive chemoradiation
  + For unresectable tumors, medically inoperable patients, or histologies that respond well to chemoradiation (e.g., SNUC, certain squamous cell carcinomas)
  + Carefully planned to protect eyes, optic pathways, and brain while delivering curative doses
* Stereotactic or brachytherapy boosts
  + Considered in selected residual or recurrent cases to escalate dose focally

Common side effects: nasal dryness/crusting, mouth/throat soreness, skin redness, taste change, dry mouth, fatigue; site‑specific risks include temporary vision or tear flow changes, and rare optic neuropathy at high cumulative doses. Proactive eye, oral, and skin care and nutrition support are crucial.

**Proton Therapy**

Proton therapy delivers high doses with minimal exit radiation, potentially reducing exposure to eyes, optic nerves/chiasm, brain, pituitary, salivary glands, and cranial nerves.

* When considered
  + Tumors abutting the optic apparatus or skull base
  + Re‑irradiation scenarios after prior head and neck radiation
  + Pediatric/younger adults where long‑term toxicity reduction is vital

**Apollo Proton Cancer Centre in Chennai is the first in South Asia and the Middle East to offer this cutting-edge treatment, making it accessible to patients from India and abroad.** Eligibility is individualized after detailed planning comparisons with advanced photon techniques.

**Medical Treatment**

* Chemotherapy
  + Used concurrently with radiation (chemoradiation) for squamous cell and some aggressive histologies
  + **As chemotherapy given before surgery or radiation (induction) in select advanced cases to shrink tumors and gauge biology**
  + Regimens tailored to histology and fitness
* Targeted therapy
  + May be considered for specific molecular alterations or salivary‑type tumors (e.g., adenoid cystic carcinoma) in advanced settings
* Immunotherapy
  + Checkpoint inhibitors can be considered for recurrent/metastatic disease not amenable to curative local therapy, particularly in biomarker‑selected patients
* Supportive care
  + Pain control, anti‑inflammatory nasal care (saline irrigations), eye lubrication, dental optimization, nutrition, and speech/swallow therapy.

**Prognosis: Survival, Function, and What Influences Outcomes**

Key prognostic factors:

* Stage at diagnosis, margin status, histology (e.g., SNUC vs adenocarcinoma), perineural and skull base/orbital invasion, nodal status
* Completeness of resection and timely adjuvant therapy
* Eye/optic pathway involvement (careful planning can sometimes spare vision)
* Access to high‑volume skull base teams and advanced radiation

Outcomes:

* Many nasal cavity and maxillary/ethmoid sinus cancers are curable with combined surgery and radiation
* Organ‑ and function‑preserving endoscopic approaches achieve excellent control in carefully selected cases
* For aggressive histologies, intensification with chemoradiation and precision radiation improves local control

Quality of life:

* **Modern reconstruction, palatal prosthetics, tear duct reconstruction, and cosmetic rehabilitation restore function and confidence. Apollo's dietitians, physiotherapists, speech and swallow therapists, and psycho-oncologists support recovery and quality of life.**
* Dedicated rehabilitation (speech, swallowing, facial therapy) supports return to daily life

**Screening and Prevention: Practical Steps**

* Workplace protection
  + Use appropriate masks/respirators and ensure ventilation when exposed to wood/leather dust, flour, solvents, or metals
* Lifestyle
  + Avoid tobacco and limit alcohol to support mucosal health and healing
* Early evaluation
  + Seek specialist assessment for unilateral, persistent "sinusitis," nosebleeds, facial/tooth numbness, non‑healing dental sockets, or new eye symptoms
* Dental and eye care
  + Maintain regular dental checkups; address ill‑fitting prostheses and dental infections
  + Prompt ophthalmology review for new double vision, tearing changes, or eye bulging

**For International Patients: Seamless Access and Support at Apollo**

Apollo Hospitals provides coordinated, end‑to‑end care for complex nasal and sinus cancers:

* Pre‑arrival medical review
  + Secure sharing of imaging and pathology for a preliminary opinion and tentative plan to help with travel and budgeting
* Appointment and treatment coordination
  + **Apollo's dedicated skull base and proton therapy teams work together, so patients get a unified opinion without needing multiple hospital visits.** Priority scheduling with ENT/skull base surgery, neurosurgery (for craniofacial cases), oculoplastics, maxillofacial and reconstructive surgery, radiation oncology (IMRT/IGRT and proton therapy evaluation), medical oncology, dentistry/prosthodontics, speech/swallow therapy, nutrition, and rehabilitation
* Travel and logistics
  + Assistance with medical visa invitations, airport pickup on request, guidance on nearby accommodation, and local transport support
* Language and cultural support
  + Interpreter services, patient navigators, and clear written care plans
* Financial counseling
  + Transparent estimates, package options when feasible, insurance coordination, and support with international payments
* Continuity of care
  + Detailed operative and pathology reports, adjuvant therapy plans, rehabilitation schedules, prosthetic fitting, and teleconsultations for follow‑up with home‑country clinicians

**Recovery, Side Effects, and Follow‑Up: What to Expect**

* After surgery
  + Hospital stay depends on approach (endoscopic vs open) and reconstruction complexity
  + Nasal packing/splints may be used temporarily; saline irrigations start early to prevent crusting
  + If reconstruction is performed, flap monitoring and gradual diet/functional recovery are guided by the team
  + Temporary changes in smell, taste, speech resonance, or tear drainage are addressed with therapy and, when needed, minor procedures
* During/after radiation (± chemotherapy)
  + Expect nasal dryness/crusting, mouth/throat soreness, skin redness, fatigue, and taste changes; most improve within weeks after treatment
  + Eye care (lubricants), oral care (fluoride trays, saliva strategies), and nutrition support help maintain comfort
* Long‑term rehabilitation
  + Palatal obturators or free‑flap reconstructions restore speech and swallowing after maxillectomy
  + Visual rehabilitation and oculoplastic care for orbital changes
  + Physical therapy for neck/shoulder stiffness; lymphedema therapy as needed
  + Psychosocial support for appearance‑related concerns; cosmetic/prosthetic options reviewed compassionately
* Follow‑up schedule
  + Typically every 1–3 months in year 1, every 2–4 months in year 2, every 4–6 months through year 5, then annually
  + Visits include nasal endoscopy, imaging as indicated (MRI/CT; PET‑CT for selected cases), dental checks, eye evaluations when relevant, and survivorship counseling.

**Frequently Asked Questions (FAQs)**

* **Is nasal cavity and paranasal sinus cancer curable?**
  + Yes. Many cases are curable, especially when detected early and treated by a specialized skull base team using a combination of surgery and precision radiation, with or without chemotherapy.
* **What are early warning signs?**
  + Persistent one‑sided nasal blockage, blood‑tinged discharge, recurring nosebleeds, facial/tooth numbness, non‑healing dental sockets, or new double vision/eye bulging. Any unilateral "sinus" symptom lasting beyond 4–6 weeks needs evaluation.
* **How is it treated?**
  + **Depending on site and stage: endoscopic or open craniofacial surgery with reconstruction, followed by adjuvant radiation in most intermediate/high‑risk cases. For unresectable disease or certain histologies, definitive chemoradiation is used. Proton therapy may be considered when the tumor is close to delicate structures like the eye or brain. Apollo Proton Cancer Centre in Chennai offers this specialized care.**
* **Will treatment affect breathing, smell, or vision?**
  + Temporary nasal dryness and crusting are common; smell may be reduced, sometimes improving over time. Vision is preserved whenever safe; when the orbit is involved, the team weighs organ‑sparing strategies against oncologic safety. Eye care and rehabilitation support recovery.
* **What are common side effects?**
  + Short‑term: nasal congestion/crusting, mouth/throat soreness, skin redness, fatigue, taste change. Long‑term (site‑dependent): dry nose/mouth, dental sensitivity, tear flow changes, rare optic neuropathy at high doses. Preventive oral/eye care and modern planning reduce risks.
* **Can it come back (recurrence)?**
  + It can. Close follow‑up with nasal endoscopy and periodic imaging detects issues early. Options include re‑resection (often endoscopic), re‑irradiation in selected cases (sometimes with proton therapy), and systemic therapy tailored to histology.
* **How long is recovery time?**
  + Endoscopic surgeries: many resume light activities in 1–2 weeks. Open craniofacial/maxillectomy cases: several weeks for initial recovery, with continued improvements over months. Radiation side effects typically improve 4–8 weeks after treatment, with further gains thereafter.

**Next Steps**

* Arrange an ENT/head and neck/skull base evaluation if unilateral "sinusitis," nosebleeds, facial/tooth numbness, a non‑healing dental socket, or eye changes persist beyond a few weeks.
* Bring prior scans (CT/MRI/PET‑CT), dental records, pathology reports, medication lists, and occupational exposure details.
* Ask about the recommended surgical approach (endoscopic vs open), need for reconstruction, the role of postoperative radiation or definitive chemoradiation, candidacy for proton therapy, eye/dental protection plans, expected recovery time, and a personalized follow‑up schedule.
* Discuss workplace protections and smoking cessation—both improve outcomes and long‑term health.

With early recognition, high‑resolution imaging, expert endoscopic or craniofacial surgery, advanced radiation (including proton therapy where appropriate), and comprehensive rehabilitation, many people with nasal cavity and paranasal sinus cancer achieve cure or durable control while maintaining function and quality of life. A compassionate, experienced multidisciplinary team—focused on cure, safety, and long‑term wellness—makes all the difference.