

Impact of COVID-19 Pandemic on Management of Head and Neck Malignancy

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ABSTRACT

With an increasing number of COVID-19 cases and a lack of definitive treatment, there is an increasing burden on already stressed health care sector in India. The patients that require medical and surgical intervention need to be triaged and provided with adequate treatment. India has a major chunk of head and neck malignancy in the world attributable to tobacco use. These patients when diagnosed early have a fair survival rate. Health personnels bear the responsibility to provide early and adequate treatment to these patients and at the same time, need to follow all measures to contain the spread of the virus. The present review highlights the various issues and newer guidelines in the management of head and neck malignancy patients during the COVID pandemic. The current review aims to present a comprehensive outlook of the updated evidence base available from PUBMED and other search engines. In India, treatment of head and neck malignancy patients are severely affected at this time of COVID-19, due to the long waiting period, delayed diagnosis, limited dedicated centres for head and neck cancer. The pandemic had diverted resources and manpower leading to potentially poor outcome of the head and neck malignancy patients. Triage policy, safety precautions for health care staff is the need of the hour and should be imbibed in regular practice.

Keywords: Biopsy, Pandemic, Surgery, Triage

INTRODUCTION

Head and neck malignancy is one of the leading cancer in India with a total load share of almost one-third of all malignancy cases, amounting to 16% among Indian men and 10% among women [1]. In India, lack of awareness and inaccessibility to proper health care services leads to the diagnosis of the majority of cases in advanced stage [2]. Since, the five-year survival rate in patients with early stage oral cancer is 82%[3]. Early diagnosis and management play a key role in reducing mortality and morbidity on the patient part and reducing burden on the already loaded healthcare system.

Sankaranarayanan R et al., noted a reduction in mortality from oral cancers when high-risk individuals were screened by trained health workers [4]. Proper clinical examination is the key to diagnose head and neck malignancy. Patients with a suspected lesion or frank growth are further subjected to histopathological examination and imaging before proceeding to definitive treatment (surgery/radiotherapy/chemotherapy). Postoperative follow-up of such patients is also recommended with the majority requiring assistance in swallowing, speech, and airway care.

In the current scenario of COVID pandemic, when public transport is limited due to restrictions, this has also affected the regular screening visits of patients to the outpatient department of hospitals. The pandemic has led to the suspension of all elective and nonemergency surgeries, except the oncological procedures which are time-sensitive. Telemedicine facility has come to rescue at this time. Healthcare providers are facing challenges in stratifying patients with risk of severe COVID illness and the necessity to be examined clinically in person for further workup of cancer.

An exhaustive literature search was conducted using suitable keywords on various search engines till September 2020 on various guidelines and developments regarding head and neck cancer management during the COVID pandemic. This review intends to assess the impact of COVID-19 pandemic on head and neck malignancy management and various strategies to overcome those impacts in the Indian scenario.

Telemedicine

Since social distancing is the major mitigation tool to contain the spread of the virus, patient visit to health care facilities should be avoided unless necessary. Telemedicine is presently been incorporated in all health centres across the country. Patient data, risk factors, previous investigations to be collected, video consultation provides greater information and should be practiced regularly in all suspected cases. Patients to be triaged based on history and examination; clinicians hold the responsibility for determining the urgency for in-person visits and further surgical intervention (biopsy/excision) considering the Center for disease Control and Prevention (CDC) risk stratification for serious COVID illness [5]. Every effort should be done to develop a robust telehealth facility for the future.

Health Care Personal Safety

Proper protective measures are of utmost importance to prevent the transmission of virus from infective patients to health care personal, which includes (N95, faceshield, disposable medical safety gown, and disposable working cap). Pregnant/lactating mothers, immunocompromised healthcare workers and individuals with acute fever should refrain from high risk procedures in COVID patients. Any intervention on COVID positive patients and otherwise high-risk procedures should be performed in a dedicated operating room with full Personal Protective Equipment (PPE) with Powered Air Purifying Respirator (PAPR). A 3M-PAPR comprises of facepiece, breathing tube, battery-operated blower, and High-Efficiency Particulate Air (HEPA) filters. Filtering Face Piece (FFP3) mask, that filters 99% of all particles which are 0.6 microns in diameter or larger, are to be used in ideal settings. When FFP3 mask is not available FFP2/N95 mask should be used in combination with three layered surgical mask. Nitrile gloves are preferred over latex gloves because they are resistant to chemicals, such as chlorine [6].

Considerations for biopsy: As per CDC, COVID-19 spreads from splashes and sprays of infective material from the patient's airway onto the mucosal surfaces or inhalation of the virus. It can also be transmitted from fomites and contact [5]. [Table/Fig-1] depicts

subsites with a high risk of aerosolisation [7]. All patients visiting health facility should be screened at the entrance and suspected patients should be segregated from other patients. Biopsy to be avoided when Fine Needle Aspiration Cytology (FNAC) from the neck is feasible. In case of preoperative COVID positive status, the surgeon should either postpone the procedure for 14 days or schedule the procedure in COVID designated OT-based on the risk versus benefit of the procedure. All patients to be tested for COVID-19 before any surgical intervention. In cases of asymptomatic leukoplakia, biopsy should be done within 1 to 6 weeks depending on the surgeon's index of suspicion [8]. COVID positive patients should be operated in a designated operation room only for emergency indications.

Risk	Site
High risk for aerosolisation	Oral cavity, oropharynx, larynx, hypopharynx, sinonasal, mastoid and middle ear, dental, trachea
Low risk for aerosolisation	Salivary gland, cutaneous lesion, thyroid, parathyroid

[Table/Fig-1]: Subsite with risk of aerosolisation.

According to a study by Kariwa H et al., povidine iodine has strong virucidal activity against SARS-CoV, it can be used prior to biopsy as a prophylactic measure [9]. Lidocaine gargle should be preferred over sprays. Lidocaine pledgets may be used in cases of trans-nasal biopsy.

Impact on surgery: Oncologic surgery though not an emergency, but is time-sensitive. There is no recommendation to delay oncological procedures. Any COVID positive patient should be deferred for surgery till a negative COVID result or unless the surgery is for life-threatening condition (airway obstruction, major bleeding) [10].

American College of Surgeons recommends the usage of Elective Surgery Acuity Scale (ESAS) from St. Louis University to triage patients on the basis of disease urgency. Almost all symptomatic cancers fall in tier 3a and need urgent intervention. Low-risk cancer (well-differentiated thyroid and low-grade parotid cancer) fall in tier 2a and can be postponed, subjected to regular reassessment for progression of the disease [11].

There is a strong agreement not to delay cancer surgery beyond eight weeks, in case of early disease and not beyond four weeks in case of advanced disease. If surgery cannot be done within this time period, alternative therapy (radiotherapy, chemotherapy) should be initiated. In cases of differentiated thyroid cancer (T1-T3 or N0-N1b) with no adverse features, surgery can be delayed for up to 12 weeks from diagnosis with serial monitoring to assess tumour progression [12]. Minimal number of staff to be allowed in the operating area with minimal required material should be used for each intervention.

Intubation and tracheostomy are considered high risk procedure. Pre-anaesthetic evaluation is of utmost importance to prevent any complications during intubation or tracheostomy [13]. All airway procedures to be done under general anesthesia. During tracheal incision, ventilation should be stopped and resumed after securing the cuff. Use of intravenous lidocaine during intubation and extubation can reduce coughing [14,15]. Closed circuit ventilation with inline suction and heat moisture exchange units may decrease the risk of aerosolisation and droplets [16].

Daycare surgery to be preferred for early lesions (T1, T2 not requiring neck dissection). Powered instruments are associated with aerosolisation and should be used judiciously. Complex reconstructive procedures to be avoided to shorten the surgery duration. This may also decrease the number of times the team members are donning and doffing PPE, as there is a substantially high risk of self-contamination during doffing [17]. The PAPR is preferable for prolonged surgeries. An operating room with negative pressure, separate from the main complex is ideal to reduce viral

load [18,19]. The University of Pittsburgh tiered the head and neck malignancy cases in order of extension of postoperative defects, with maximum cases being managed with primary closure or locoregional flap where possible. Free flap reconstructive procedures were reserved for tier three including oropharyngeal defects >50% neck communication, total laryngopharyngectomy, skull base defects [20]. Flap checking frequency should be decreased to limit exposure risk to the health care staff.

Use of lasers (CO2, Er:YAG) and electrocautery need special precaution in view of risk of virus transmission through smoke and plume. HEPA filters along with plume scavenging systems should be used in the operating room [21]. [Table/Fig-2] briefs the recommendation from MD Anderson Head and Neck Surgery Treatment Guidelines Consortium [7] and international consensus by Mehanna H et al., [12].

Site	Stage	Recommendation for surgery
Oral cavity	Premalignant	Biopsy within 12 weeks
	Early	Surgery can be delayed up to eight weeks if necessary
	Advanced	Surgery can be deferred up to four weeks Radiotherapy to be considered if surgery has to be delayed for more time
Oropharynx	Early	Favor non-surgical treatment
	Advanced	Favor non-surgical treatment
Larynx/Hypopharynx	Early	Favor non-surgical treatment
	Advanced	Non-surgical treatment where appropriate. Neoadjuvant systemic therapy if surgery has to be deferred for >four weeks
Salivary gland	Low/intermediate grade	Defer surgery upto eight weeks
	High grade, pediatric patients	Proceed with surgery
Temporal bone	Early	Can be delayed upto four weeks if required
	Advanced	Consider neoadjuvant chemotherapy
Endocrine	Early	Postpone surgery
	Advanced	Proceed with surgery in cases of thyroid tumour with airway compromise anaplastic/undifferentiated/clinically aggressive medullary tumour parathyroid CA with symptomatic hypercalcaemia
Sinonasal	Early lesion	Chemo/radiation
Sinonasal advance disease	Undifferentiated CA/ SCC	Neoadjuvant chemotherapy
	Mucosal melanoma	Neoadjuvant immunotherapy
	Sarcoma	Radiation
	Low grade neuroendocrine carcinoma, olfactory neuroblastoma, minor salivary gland origin tumour	Defer surgery and monitor with periodic imaging

[Table/Fig-2]: Subsite specific recommendation for surgery [7,12].

Postoperative Care and Follow-up

Immediate postoperative hospital stay should be in an isolation ward with minimal face-to-face visit. The strategy for postoperative radiotherapy adopted favors hypofractionated protocols according to the recommendations of the Moroccan Society of Cancerology [22,23]. There is a strong recommendation to delay the initiation of radiotherapy in SARS-COV-2 positive patients until recovery or negative test results [23]. All patients should be screened for COVID symptoms at each visit. Suspected and confirmed patients should

be segregated from others. Patients with head and neck cancer should be followed-up through video or phone consultations after three months of surgery, with face-to-face review only in the case of suspicious findings. The clinician should evaluate and differentiate between patients that need physical examination at the hospital from those that can be evaluated via telemedicine speech therapy, swallowing therapy to be guided via telemedicine facility after initial in-person evaluation at the time of discharge of patient. Patients on long-term follow-up are deferred and so is surveillance scanning, to a later date [24].

CONCLUSION(S)

It is a difficult situation for any head and neck surgeon to follow any particular guideline in triaging patients based on their clinical condition. Head and neck specialists are facing unprecedented challenges during the COVID-19 pandemic. They hold the responsibility to prevent infection among health care staff involved in patient care and at the same time provide adequate treatment to the patients at the earliest when the health system is already overwhelmed. Hospitals should be organised as such to prevent cross-infection among patients visiting the facility. The current global health crisis is forcing us to adopt a triage policy to optimise patient care and health care provider safety. Although these recommendations have been developed during the COVID-19 pandemic, we believe that these practices could also be followed in other settings of crisis where a shortage of healthcare facilities arises.

Although practices and guidelines are evolving with time, this narrative review compiles various guidelines and changes in the treatment protocol for head and neck malignancy patients, based on national standard operating procedures, published literature, and expert opinions.

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