



FROM CONFUSION TO CLARITY: A REGIONAL CANCER CENTER OF INDIA DOCUMENTS ITS JOURNEY IN THE MANAGEMENT OF HEAD-NECK MALIGNANCY DURING THE COVID-19 PANDEMIC

Oncology

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ABSTRACT

COVID19 global pandemic has effected 216 countries[1] so far. In India the total number of cases has crossed 4 lakhs at the time of writing this paper [2]. Since the COVID-19 pandemic hit our country, the Government of India has called five successive lockdowns [3] of varying intensity, from 25th March 2020 to 30th June 2020 to contain the spread of infection. The lockdown resulted in social and logistic issues for the patients and health care workers. As a subspeciality, Head Neck Oncology presented unique challenges by the very nature of its disease. Head neck cancers have overlapping symptoms with COVID-19 and arise from sites of high viral load. Oioncosurgeons struggled to find a middle path between prevention of virus dissemination and treatment of the malignancy. Within days of the first lockdown, FHNO, and later others, published management guidelines to define our path. The objective of this retrospective review is to document the challenges at a regional cancer center in South India in different phases of lockdown. We document our journey to overcome them and work towards normalcy, within the framework of prescribed COVID-19 guidelines, without compromising oncological principles, in the ever-changing scenario of this havoc-wreaking pandemic.

KEYWORDS

covid-19 infection, head and neck cancers, challenges, solutions

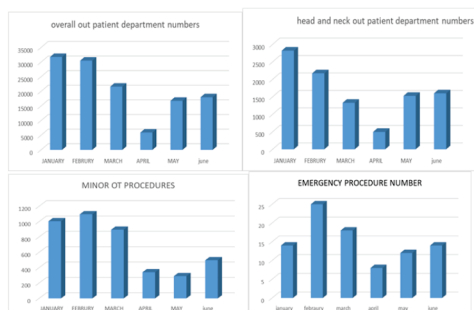
INTRODUCTION

Corona virus is a highly contagious disease carrying an overall mortality of 2.4-5.5%^[4]. Head neck cancers accounts for 30% of all cancers in male and 11-16% of female in India^[5], and 60 to 80 % of cases present in advanced stage. COVID infection and cancer is deadly combination 28.6%^[6]. There was a huge fear among patients and health care professionals regarding self protection against COVID infection. Head neck oncologists struggled to find solutions to the unique challenges in evaluation, diagnosis and treatment of head neck cancer during the COVID-19 pandemic.

By 29th March 2020, the FHNO, a national organization of head and neck oncologists, came up with guidelines^[7]. Subsequently, Ministry of Health and Family Welfare, GOI and Dept of Health and Family Welfare, Karnataka state^[8,9,10,11] and later the NCCN^[12], French Consensus^[13], MD Anderson^[14] and JNCCN^[15] management protocols made our path much clearer.

Drop in numbers:

The following graphs depicts the drastic fall in number of patients attending our hospital in general, and head neck OPD in particular. Consequently, there was a drastic reduction in the number of emergency cases, major and minor OT procedures.



Providing uninterrupted emergency services

In spite of the "fell clutch of circumstance", utmost care was taken to provide uninterrupted emergency services even in the strictest lockdown phase. Patients who presented with stridor, dysphagia, bleeding or any other life threatening conditions were attended to promptly. They were neither triaged nor made to undergo COVID-19 testing or reporting.

Often at a considerable risk to the resident doctors, emergency tracheostomies, nasogastric tube insertions and feeding jejunostomies were performed with N95 mask/double face masks with HIV protection kits as alternatives to PPE kits in early phase of lockdown. Later, PPE kits were made freely available to all the frontline workers.

A separate theatre was designated for all emergency cases. Closed suction was employed for prevent open aerosolisation of tracheostomal secretions. If closed suction was not available, suctioning was done under cover of a transparent or semi-transparent plastic sheet. The patient's tracheostomy tube was connected with HME filters to the virus particles efficiently there by reducing the cross infections, protecting the other patients and health care workers. If HME filters were not available, surgical masks were used to cover the tracheostomy tube immediately after the procedure. If not tolerating, they were placed on T-piece through which oxygen could be administered. Conservative management for oral bleeding cases and merocel packing for epistaxis were established protocol.

The challenges in the OPD

1. Overlapping symptoms: The symptoms of head neck cancer overlap significantly with COVID-19 symptomatology. Laryngeal and hypopharyngeal cancer patients may have cough, breathlessness, sore throat and throat pain, and need detailed history taking and careful clinical examination to differentiate between them, keeping in mind that the two conditions are not mutually exclusive. Pre-existing comorbidities, specially COPD, makes them more vulnerable to missed diagnosis.

2. High aerosol generating procedures carry high risk of transmitting COVID-19: In order to evaluate nasopharyngeal, hypopharyngeal, laryngeal cancers, close examination of areas of high viral loads is needed. Tools like nasopharyngoscopy, hypopharyngoscopy and laryngoscopy are known to be high aerosol generating procedures requiring close and sustained contact. This puts the treating doctors and assisting staff at high risk of acquiring COVID-19 if the patient is an active case of COVID-19 infection, or even an asymptomatic carrier.

3. COVID-19 status unknown: The changing ICMR guidelines as to who should be tested, and when, ranged from strict contact tracing in the initial days, to testing symptomatic individuals, to testing all preoperative patients in the current scenario. Asymptomatic individuals were not tested unless they have proven contact with a confirmed case. Alongside the changing guidelines was the stigma which came to be attached to the infection. This caused many to hide their travel and contact history. Later, as lockdown was curtailed people started travelling be contagious to others. The testing facilities were limited to a few centers in the initial days. Later 79 labs including our hospital were established in the Karnataka state at the time of writing this paper. The possibility of false negatives with RT PCR like any testing tool were a cause for greater worry, as it induced a false sense of security. This 'unknown COVID-19 status' was not only applicable to patients, but also their faithful attenders and health care staff.

Challenges in the wards:

1. To keep the wards COVID free, COVID suspect patients need to be segregated from swab-negative patients, till the report arrived. To maintain social distancing, a gap of 1 metre between two beds is essential. Wards need a dedicated area for donning and doffing. Space constraints was a major issue.

2. Anxious relatives request the nursing staff and residents for updates on the patient status.

Challenges in the operating rooms:

1. Elective cases: Elective surgeries were avoided in the initial phase of lock down due to the limited availability of PPE kits, because head neck surgery entails opening up the sites of high viral loads to the surrounding environment. The high density of infective droplets can contaminate the entire operating room leading to quarantine of the entire surgical, anesthesia and ICU teams, with transmission to other patients as well. The operative cases themselves tolerate the COVID-19 infection poorly, and can result in mortality as high as 20% and significant morbidity.

2. PPE Kits: Unfamiliar and uncomfortable PPE kits, especially those with hood cap were an impediment to surgeon comfort. The glasses are prone to fogging, and a well-fitting N95 mask with face shield obstructs normal breathing, and definitely precludes meaningful conversation. A full face respirator is heavy and cumbersome for long periods, as mean duration of surgery is around 4 hours for major head and neck cases. Surgeon comfort while performing complex procedures wearing PPE was never really achieved.

3. Since communication was restricted during the surgeries, each member of the surgical team was expected to know exactly what was expected of him/her.

The solutions Steps taken by hospital administration-

1. Availability of COVID-19 testing, personal protective equipment (PPE), disposable medical supplies, hospital and ICU beds, ventilators, and ancillary staff was ensured. The COVID-19 testing booths were set up in the hospital campus in the third phase of lockdown, allowing testing of walk-in patients, their attenders and preoperative patients.

2. Replacing biometric attendance with register signing, hydroxychloroquine chemoprophylaxis^[17], training for donning and doffing PPE, hand hygiene, sanitation^[18] and sterilization for health-care staff further progresses the self-care goals. Dedicated e-seminars directed towards dietary advice and mediation methods for the health care staff reinforces the goals.

3. Arranging conveyance for manpower and materials to and from the campus, talks volumes about the dedication of the management team.

4. Arranging for frequent cleaning of surfaces with sodium

hypochlorite and 70% alcohol for wards, corridors, OPD and common areas as appropriate. The disposal of used consumables was methodically arranged for.

5. Rostering of the faculty, resident and staff such that the risk of exposure is minimized, keeps adequate manpower backup.

6. Suspending all academic activities, like seminars and journal clubs to prevent mass gathering, and promoting e-learning is the new normal. Even multi-disciplinary clinics can be conducted over conference calls.

7. Our five gates to reach the OPD-

1. Restricted entry of vehicles into hospital campus to prevent overcrowding-
2. Checking at entry point to ensure face mask and hand sanitizing-
3. Screening in the form of self-declaration of history of travel/contact
4. In-campus COVID19 testing booth (in 3rd phase of lockdown) to test all walk-in new OPD cases, suspected cases, and later all preoperative cases----entry slip issued to patient and single attender to enter OPD block-
5. Hand sanitation and social distancing in OPD waiting hall-----consultation chamber entry for one patient-attender unit per consultant.

Steps taken in Head Neck Onco OPD

1. Diagnostic procedures: Replacing all indirect laryngoscopic examinations with 90 degree Hopkins telescope with monitor attachment, that too, in limited patients whose history suggests its absolute need. All such patients were attended to in the endoscopy clinic, where a single resident and single assisting staff, in full PPE^[6] (level II) can perform the procedures. The patient was explained the procedure and advised not to cough or sneeze. The patient's mucosal surface was well anaesthetized with 10% lignocaine spray, 2% xylocaine injection, 4% xylocaine solution or xylocaine viscous gargles as appropriate. Adequate time was taken between two patients to enable the instruments to be properly sterilized. Thus keeping to the principles of oncological diagnosis while ensuring safety of patient and staff.

2. Imaging dependent diagnosis like imaging-guided translaryngeal FNAC's for laryngeal and hypopharyngeal tumors avoid direct biopsies^[19]. Request for tumor markers like EBV and HPV in relevant cases is appropriate to confirm the diagnosis.

3. Triaging: Cancer patients were triaged based on need and efficacy of treatment. Deferred surgeries for premalignant lesions, very early stage tumors and in patients in whom the prognosis would not be affected, seemed a reasonable approach^[20,21]. In malignancies where surgery and radiation have similar outcomes, like stage I, II and some III laryngeal and hypopharyngeal cancers, (chemo)radiation was advised. Where surgery was the best modality of treatment for the patient, they were prepared for surgery.

4. Telecommunication^[21,22] allowed follow-up visits to be brought down to an absolute minimum for low-risk individuals and for patients who were unable to reach the hospital due to local lockdown or transportation issues.

Steps taken in the wards-

1. All elective patients were screened and admitted into COVID-19 suspect ward 1-2 days before the proposed procedure. A single responsible patient attender was allowed in the ward, also after being screened and swabbed.

2. Since bed occupancy was at a low, patients were accommodated in alternate beds.

3. Patients with open aero digestive tract procedures, specially tracheostomy, were placed at an extreme end of the ward.

4. The minor OT attached to the ward was converted into doffing area. All minor procedures were kept at a minimum, and performed either bedside or taken to the endoscopy-cum-dressing room in the OPD complex.

5. Patients were discharged as early as possible, and asked to self-

quarantine for further 7 days.

Steps taken in the OT

1. Before surgery: The commencement for elective surgeries were based on availability of PPEs, whether surgery is the best modality of treatment for the patient, and patient's performance status (ECOG 0 or 1). The patients and single responsible attendant are mandated to produce a COVID-19 status report. They are then counselled regarding unusually high mortality and morbidity of elective procedures in presence of COVID-19 infections, as well as non-liability of the hospital if they acquired the corona virus during their course of treatment.

2. Universal precautions- Even though COVID-19 negative patients are selected for surgery, universal precautions are to be taken by treating team, keeping in mind that the sensitivity and specificity of RT-PCR testing is not 100%. All OT personnel are mandated to don at least level III PPE.

3. Anesthesia considerations- Intubation was performed with intubation chamber only, with limited personnel in the theatre. Senior anesthesiologists were requested to intubate airway compromised patients to reduce intubation failures, and thereby unnecessary tracheostomies. HME filters are used with ET tube. Closed suction was employed as far as practical.

4. Surgical considerations- No powered instruments were used. Microvascular reconstructions were avoided and alternative methods of reconstruction like regional flaps were used. Diagnostic open biopsies of aggressive tumors, like lymphoma, was performed promptly under local anesthesia. Daycare surgeries were encouraged.

Recent measures: from June onwards, the following additional precautions were taken to contain the local outbreak within the hospital as the number cases kept increasing within the city, state and in the country.

1. Reserve operation theatre complex: Our operation theatre complex is designed in a 5+2 manner. Our theatre complex and another twin theaters are isolated by space. Twin theatres were closed and kept as reserve whenever main operation theaters need to be ceased for a short term following accidental exposure to COVID-19-infected persons, so that uninterrupted emergency care can be provided in the twin operation theatres.

2. Testing the COVID-19 infection twice: Few patients who were tested negative for COVID-19 infection and receiving treatment as inpatients turned out to be positive later. So we started testing for COVID infection twice, once at the time of admission or first visit, and second time, just before giving definitive treatment in the form of surgery or RT or chemotherapy as inpatient

Palliative care

Patients with uncontrolled symptoms and requiring terminal care were only admitted in the hospital^[23]. We recommended medication for longer duration and counselled regarding homecare.

Our limitations

The review deals with only those patients who did manage to reach the tertiary cancer care centers, and there is no way of knowing how many patients were affected by their inability to reach the hospital due to socio-economic or transportation issues.

Conclusion-

The challenge in management of head and neck malignancies in COVID-19 era lies in the fact that the majority of these cancers arise in areas of high virus load and can disseminate during diagnostic and therapeutic procedures. Providing standard of oncological care while minimising collateral damage is difficult but not impossible, if we can adapt to the 'new normal'.

Conflict of interest:

We declare no conflict of interest

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