

# Current practices and beliefs regarding the use of oropharyngeal throat pack in India: A nationwide survey

## INTRODUCTION

Throat pack (TP) is commonly used during oral and-maxillofacial surgeries to prevent aspiration of blood and tissue debris intraoperatively as well as during extubation. A missing TP could potentially lead to catastrophic complications like total airway obstruction that could have medicolegal repercussions. There is no clear consensus regarding personnel responsible for insertion and removal of TP and measures to prevent TP retention.<sup>[1-4]</sup> Also, there is no Indian data on the prevalence of use of TPs, the incidence of any untoward events due to their usage and guidelines to prevent TP retention. Hence, we conducted this cross-sectional survey to find out the current practices and the perception of Indian anaesthesiologists towards the use of TP and recommend the best practices to prevent this complication.

## METHODS

A semi-structured set of 21 questions validated by a panel of five anaesthesiologists (with an experience of >10 years), was prepared using Google forms. It was circulated via e-mails and social media platforms like WhatsApp [Annexure 1] from June 2018 and August 2019. A snowball method of sampling technique was used, and the contacts were encouraged to forward the link further. A reminder link was sent every week for four weeks and the responses thus collected were analysed.

## RESULTS

The survey questionnaire was sent to 700 anaesthesiologists out of which 243 (34.7%-response rate) replied. Majority of participants (55.6%) had >5 years of experience in anaesthesia. Forty-seven percent of our participants worked in a government (non-teaching) set up, 32.9% in a medical college and rest in a private institution. 177 (85.1%) responders regularly practised anaesthesia for oral, maxillo-facial and head/neck surgeries. 183 (75.3%) participants were in favour of inserting the TP during

oral surgeries and 104 (42.8%) anaesthesiologists had an institutional protocol regarding its insertion. Majority of anaesthesiologists (84.3%) discussed the need for TP insertion with surgeons and were responsible for TP insertion (53.5%). A ribbon gauze (90.94%) was used as a TP in most of the cases followed by loose gauze pieces. Majority (88.1%) of our participants inserted the TP with the help of Magill forceps under direct laryngoscopic vision [Figure 1]. Tonsillar pillar injury and uvular injury were common problems encountered during TP insertion. 93 (38.27%) participants encountered retained TP, mostly due to a change in the operating, anaesthesia, or nursing team (41.9%). This led to airway obstruction in 37.6% of cases in the post-operative period but did not lead to any mortality.

The common measures taken to prevent TP retention included leaving a part of TP outside the mouth (63.4%), labelling on the patient (43.2%); anaesthesia machine (11.9%) or airway device (7%) and documentation in the World Health Organisation (WHO) checklist (15.6%) [Table 1]. The occurrence of complications led to an introduction of institutional guidelines in 28.3% of our study participants.

## DISCUSSION

TP is commonly used in head and neck surgeries. The prevalence of TP insertion ranges from 30-70% in routine oral surgeries.<sup>[3,4]</sup> Our study also revealed a much wider use (75.3%) of TPs in oral surgeries. This observance is underpinned by the ubiquitous fear of aspiration amongst anaesthesiologists and the incertitude that the patient position or the airway device itself will be enough to achieve what we intend to reinforce with a TP.

A TP acts a pharyngeal tampon and is placed in the posterior pharynx after endotracheal intubation to prevent secretions/blood/tissue debris from trickling down into the stomach or trachea.<sup>[1]</sup> Most of our participants believed that use of TP prevented the entry of blood or secretions into the trachea, but it has been shown that pharyngeal packing is not full-proof protection.<sup>[5]</sup>

Various guidelines have emerged to prevent the dangerous consequences of TP retention, but <50% of our study population followed an institutional protocol for TP insertion.<sup>[1,2]</sup> Most of our study participants (>50%) agreed that the anaesthesia team

was responsible for the insertion of TP and this is similar to the previous study by Knepil *et al.*<sup>[3]</sup>

Insertion of TP with Magill forceps and direct laryngoscope (66.2%) or videolaryngoscope (21.8%) was the preferred choice [Figure 1]. The method of insertion of TP has mostly been passed down through teaching and there is no evidence to suggest which method is better. Guidelines suggest that the TP should be included in the surgical 'swab count'; however, less than 25% of our respondents followed this.<sup>[1,2]</sup> Studies have also shown that placement of TP can lead to throat pain, injury to pharyngeal plexus, tongue swelling and ulcers etc., similar to our study findings.<sup>[5-8]</sup> Various methods described to prevent complications of TP retention including labelling on the patient's forehead, tying the pack to the airway device, leaving a part of the pack outside the mouth, labelling on the anaesthesia machine, proper documentation in the case sheet have all been tried.<sup>[4]</sup> Despite such precautionary measures, incidents of retained TPs are often reported especially in absence of designated personnel responsible for TP removal.<sup>[4,9]</sup> The person removing the TP should verbally communicate about it to the surgery, anaesthesia and nursing teams and document the same. Absence of its documentation and communication at the time of handing-over of patient can result in TP retention.

A retained TP may lead to the dangerous complication of airway obstruction in the immediate post-extubation period.<sup>[9,10]</sup> In such cases, the airway can be difficult due to the pathology, surgical edema, and restraints like dressing/interdental wiring. Moreover, the forgotten TP may be missed as a differential diagnosis of airway obstruction. This may lead to delay in diagnosis and prove catastrophic. We too noted similar findings in our study. The reasons quoted by the respondents in our study included change in operating teams without structured handing over, additional packs inserted

by surgeons without communication and "forgetting to remove". National Patient Safety Agency (NPSA) advocates both visual check/documentation and responsibility of a designated person for the TP!<sup>[2,11]</sup> A column for TP insertion and removal can be added in the anaesthesia chart and the WHO surgical safety checklist. After facing the complications of retained TP, a similar change in institutional policy was undertaken in the institutions of many of our respondents; nonetheless, consensus statements regarding the insertion of TP after careful consideration and taking extreme precautions have already been released by three national organisations.<sup>[11]</sup>

We put forward few recommendations based on our survey findings. The requirement of TP insertion should be a mutually agreed decision between the surgeons and the anaesthesiologists. Its usage should be documented in the case records as well as on the whiteboard with swab counts. Visual checks should be done during insertion and removal. Various aids to memory e.g., labelling on patient/anaesthesia machine and fixing the pack to an airway device must be followed. A laryngoscopic examination preferably using a videolaryngoscope, is advisable before extubation to prevent its retention. Removal of the TP should be effectively communicated between all operating room staff and those being handed over the patient with TP in-situ. Our survey has also highlighted the need for practice guidelines, implementation of safety checklists as these have been shown to improve outcomes and ensure quality control.<sup>[12]</sup>

## CONCLUSION

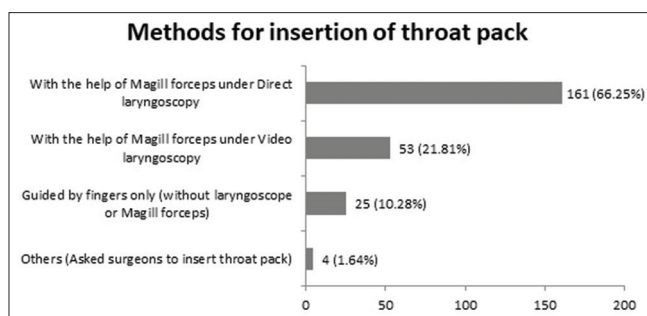
From our cross-sectional analysis, we conclude that the magnitude of the problem of TP retention is severe and there is a lack of consensus regarding the practice of its insertion and removal. A protocolised approach with proper communication amongst all stakeholders and strict documentation is the key to prevent untoward incidents related to the use of TPs.

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Nil.



**Figure 1:** Bar diagram showing methods used for insertion of throat pack

Table 1: Details of throat pack (TP) removal practice and complications seen

	Number of participants (n=243)	Percentage
Persons removing throat pack at the end of surgery		
Anaesthesiologists	175	73.66
Person who inserted	29	11.93
Surgeons	11	4.5
Either surgeon or anaesthesiologist	28	11.52
Team responsible for removing TP at the end of surgery		
Anaesthesia	151	62.10
Surgery	4	1.64
Both the teams	78	32.09
No fixed team	10	4.11
Methods used to ascertain TP removal after surgery		
Visual mark/label on anaesthesia machine	29	11.9
Leave a part of the throat pack outside	154	63.4
Document in case sheet during insertion	154	63.4
Label/mark on patient	105	43.2
Document in WHO checklist	38	15.6
Put a label on airway device	17	7
Recall from memory	5	2.05
Any complication encountered due to retained TP postoperatively		
Yes	93	38.27
No	150	61.72
Type of complications in the postoperative period due to retained TP (n=243)		
Immediate		
Airway obstruction	91	37.4
Retching/Vomiting	4	1.6
Delayed		
Dysphagia	5	2.0
Intestinal obstruction	1	0.8
Probable reason for retained TP		
Change of team (surgeons/anaesthetists/nursing staff)	39	41.93
Wrongful claim of removal	20	21.50
Undocumented additional packs inserted by surgeons	19	20.43
Team responsible for removal forgot to remove	37	39.78
Any change occurred in institutional policy due to the complications seen (n=93)		
Yes	65	69.89
No	28	30.10

### Conflicts of interest

There are no conflicts of interest.

**Anju Gupta, Riniki Sarma<sup>1</sup>, Nishkarsh Gupta<sup>1</sup>,  
Rakesh Kumar<sup>2</sup>**

Department of Anaesthesiology, Pain Medicine and Intensive Care, AIIMS, New Delhi, <sup>1</sup>Department of Onco-Anaesthesiology and Palliative Medicine, AIIMS, New Delhi, <sup>2</sup>Department of Anaesthesiology, SGT Medical College and Research Institute, Gurugram, Haryana, India

#### Address for correspondence:

Dr. Nishkarsh Gupta,  
Department of Onco-Anaesthesiology and Palliative Medicine,  
Room No 139, First Floor, DRBRAIRCH, AIIMS, New Delhi, India.  
E-mail: drnishkarsh@rediffmail.com

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## ANNEXURE 1

### Use of throat pack during surgery and anaesthesia: A survey of current practices in India

Please read the information carefully.

This is a short survey to find out the current practices regarding throat pack insertion by anaesthesiologists in India. Anyone (Consultant, Senior resident, Junior resident) with experience in anaesthesiology can participate in the study. The time required to answer these questions is approximately 10 minutes. The study participation is voluntary. All the information will be kept confidential. Aggregated data will be used for analysis. In case of any query please mail at [drnishkarsh@rediffmail.com](mailto:drnishkarsh@rediffmail.com)

**Consent to participate** I have reviewed the information provided in the participation information sheet provided above and have made required clarification if required from the investigator. I understand that my participation in this survey is voluntary, and I can decline my participation without giving any reason. By clicking on the "I Agree button", I give consent to be part of the study.

I agree

1. Total experience in Anaesthesiology
  - <5 years
  - 5-10 years
  - >10 years
2. Type of institution where presently working
  - Government (non-teaching)
  - Private
  - Medical college
3. How often do you get oral, facio-maxillary, head and neck surgeries done?
  - Regularly (at least 5 per month)
  - Occasionally (2 per month)
  - Rarely (5-10 per year)
  - Never
4. Do you have any guidelines/policy regarding throat pack under anaesthesia at your institute? (Yes/No)
5. How often do you use throat packs in all the oral surgeries?
  - Always
  - Sometimes
  - Never
  - As needed
6. Is the need for throat pack discussed and mutually agreed between the surgeon and the anaesthetist?
  - Always
  - Sometimes
  - Never
7. How do you insert throat pack?
  - With the help of Magill forceps under laryngoscope guidance
  - With the help of Magill forceps under videolaryngoscope guidance

- Guided by finger without laryngoscope or Magill forceps
  - Other
8. Why do you insert throat packs? (Tick all that apply)
- Stabilisation of tracheal tube
  - Prevention of nausea and vomiting
  - Reduce leakage around the endotracheal tube
  - Prevention of blood entering the stomach during maxillo-facial surgery
  - Prevention of blood or secretions entering the trachea
  - Other
9. What kind of throat pack is generally used at your hospital?
- Ribbon gauze
  - Loose gauze piece
  - Paraffin impregnated gauze
  - Raytec gauze
  - Other
10. Who generally inserts the throat pack?
- Surgeon
  - Anaesthetist
  - Either team as needed
11. Do you think that the throat pack should be counted in the gauze count?
- No
  - Yes
12. If yes, have you seen it being practised in your experience?
- Yes
  - No
13. Does the throat pack used at your place have a radiopaque marker for easy detection in case of retention?
- Yes
  - No
14. Have you witnessed any problem during insertion of the throat pack? (Tick all that apply)
- Injury to tongue/frenum
  - Damage to uvula
  - Dental damage
  - Tonsillar pillar
15. What methods do you use to ascertain that throat pack is removed after surgery? (Tick all that apply)
- Visual mark/label on the anaesthesia machine
  - Leave a part of pack outside
  - Document it in the case sheet at the time of insertion
  - Label/mark on the patient
  - Include it in the swab count
  - Document insertion/removal in the WHO checklist
  - Putting a label on the airway device

16. Who removes the throat pack at the end of surgery at your workplace?
  - Always anesthesiologist
  - Always surgeon
  - Nurse
  - The person who inserts it
  - Any of these
  
17. Which team is responsible for removing the throat pack?
  - Surgical
  - Anaesthesia
  - Both
  - The team which inserted
  - Nothing fixed
  
18. Have you witnessed complications due to retained throat pack?
  - Yes
  - No
  
19. If yes, what complication was encountered?
  - Airway obstruction
  - Dysphagia
  - Swallowed pack leading to intestinal obstruction
  - Vomiting
  - Need for endoscopic removal
  - Any other
  - Not applicable
  
20. What do you think was the reason for the incident? (Tick all that apply)
  - Surgeon/anesthesiologist wrongly claiming to have removed it
  - Change of team (surgeon/anaesthetist/nurses)
  - The team forgot to remove
  - Additional packs placed during the surgery but not recorded/documentated
  - Any other (please specify)
  - Not applicable
  
21. Did the episode of throat pack retention lead to any change in practice or policy at your institute?
  - Yes
  - No