







Care, challenges, and difficulties of the surgical nursing team in caring for patients undergoing tracheostomy

Vivian Lemes Lobo Bittencourt^{1,*} , Sandra Leontina Graube¹ , Eliane Raquel Rieth Benetti² ,
Rosane Teresinha Fontana¹ , Francisco Carlos Pinto Rodrigues¹ , Charlyne Fonseca¹ 

ABSTRACT

Objective: To investigate the care, challenges, and difficulties faced by the surgical nursing team when caring for patients undergoing tracheostomy during the intraoperative and immediate postoperative periods. **Method:** A qualitative, descriptive study conducted through individual interviews with 14 members of the surgical nursing team in the second semester of 2023. The data were analyzed using content analysis. **Results:** The participants listed some of the nursing care provided to patients undergoing tracheostomy surgery, such as airway suctioning and changing the dressing and securing tie. There was also disagreement regarding the sequence of airway suctioning and dressing/tie changes. Regarding challenges and difficulties, the participants highlighted the need for health education for the tracheostomized patient, their family, and the professionals involved. **Conclusion:** The concepts and practices of the nursing team need to be updated due to gaps identified in their knowledge about care and guidance for the tracheostomized patient.


DESCRIPTORS: Surgicenters. Nursing, team. Perioperative nursing. Tracheostomy. Enterostomal therapy.

Cuidados, desafios e dificuldades da equipe de enfermagem cirúrgica com pessoa submetida a traqueostomia

RESUMO

Objetivo: Investigar cuidados, desafios e dificuldades da equipe de enfermagem cirúrgica com a pessoa submetida a traqueostomia no transoperatório e no pós-operatório imediato. **Método:** Estudo qualitativo, descritivo, realizado por meio de entrevista individual com 14 integrantes da equipe de enfermagem do centro cirúrgico no segundo semestre de 2023. Os dados foram analisados pelo método de análise de conteúdo. **Resultados:** Os participantes listaram alguns cuidados de enfermagem que são desenvolvidos com a pessoa que passa pela confecção cirúrgica de traqueostomia, como aspiração de vias aéreas e troca do curativo e do cadarço de fixação. Também foram discordantes quanto à sequência de aspiração de vias aéreas e troca do curativo e do cadarço de fixação. Quanto a desafios e dificuldades, sinalizaram a necessidade de educação em saúde ao paciente traqueostomizado, à sua família e aos profissionais. **Conclusão:** As concepções e as práticas da equipe de enfermagem precisam ser atualizadas, por causa das lacunas identificadas nos saberes da equipe sobre cuidados e orientações ao paciente traqueostomizado.

DESCRIPTORES: Centros cirúrgicos. Equipe de enfermagem. Enfermagem perioperatória. Traqueostomia. Estomaterapia.

¹Universidade Regional Integrada do Alto Uruguai e das Missões  – Santo Ângelo (RS), Brazil.

²Universidade Federal de Santa Maria  – Palmeira das Missões (RS), Brazil.

*Corresponding author: vivillobo@hotmail.com

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Cuidados, desafíos y dificultades del equipo de enfermería quirúrgica frente a personas sometidas a traqueostomía

RESUMEN

Objetivo: Investigar los cuidados, desafíos y dificultades del equipo de enfermería quirúrgica con personas sometidas a traqueostomía durante el intraoperatorio y postoperatorio inmediato. **Método:** Estudio cualitativo, descriptivo, realizado a través de entrevistas individuales con 14 miembros del equipo de enfermería del centro quirúrgico, en el segundo semestre del 2023. Los datos fueron analizados utilizando el método de análisis de contenido. **Resultados:** Los participantes enumeraron algunos cuidados de enfermería realizados en personas sometidas a la realización quirúrgica de una traqueotomía, como la aspiración de las vías respiratorias, el vendaje y el cambio de los cordones de fijación. Los participantes no estuvieron de acuerdo con respecto a la secuencia de realización de la aspiración de las vías respiratorias, el cambio de vendaje y la fijación de los cordones. En cuanto a los desafíos y dificultades, señalaron la necesidad de educación en salud dirigida a los pacientes traqueostomizados, sus familiares y los profesionales de la salud. **Conclusión:** Las concepciones y prácticas del equipo de enfermería necesitan ser actualizadas, debido a las lagunas identificadas en el conocimiento del equipo sobre el cuidado y orientación al paciente traqueostomizado.

DESCRIPTORES: Centros quirúrgicos. Grupo de enfermería. Enfermería perioperatoria. Traqueostomía. Estomaterapia.

INTRODUCTION

Tracheostomy is a surgically created opening in the trachea to provide an alternative breathing route for critically ill patients during surgery¹. This opening, also known as a stoma, is protected by the placement of a tracheostomy tube, which may be either temporary or permanent². The main indications for this procedure in adults and the elderly are: upper airway obstruction, prolonged need for mechanical ventilation, failure to wean from ventilation, surgical reconstruction of the trachea, airway protection or maintenance, and bronchial hygiene^{3,4}.

The operating room (OR) is appropriately equipped for this procedure, considering the need for specialized equipment, materials, and trained staff⁴. Because it is associated with both immediate and long-term complications, tracheostomy requires advanced nursing care⁵. Postoperative care in the hospital setting requires a multidisciplinary team to ensure qualified and safe assistance to prevent complications, including bleeding, infection, airway obstruction with life-threatening risks, and cervical emphysema⁶. It is essential for the team to monitor for signs of infection, maintain oral cavity hygiene, perform suctioning and dressing changes, and ensure proper ventilation and oxygenation⁷—especially the nursing team, as they are responsible for providing 24-hour patient care.

It is understood that care for individuals who have undergone a tracheostomy is crucial; however, gaps in the knowledge base regarding the ideal management of tracheostomies, from tube insertion to patient discharge, are evident⁸. Furthermore, it is notable that care is often inadequate and fragmented, particularly in the preoperative period and after discharge². A study reveals that the low level of knowledge and competence in general tracheostomy care indicates errors in nursing practice and knowledge gaps that need to be addressed⁶.

Based on this, the question arises: what are the challenges and difficulties faced in the surgical nursing care of individuals undergoing tracheostomy during the intraoperative and immediate postoperative periods? It is known that the knowledge and skills of nursing professionals are vital for the continuous and safe care of individuals with tracheostomies. Therefore, the study is justified by the relevance of the topic to nursing practice. Additionally, the findings of this study may help inform strategies to improve care for these patients in the operating room.

OBJECTIVES

In light of the above, the objective is to investigate the care, challenges, and difficulties faced by the surgical nursing team when providing care to patients undergoing tracheostomy during the intraoperative and immediate postoperative periods.

METHODS

This is a qualitative, descriptive study conducted in the second semester of 2023 in the OR of a medium-sized private hospital located in the interior of the state of Rio Grande do Sul. To ensure the quality of the writing, the COnsolidated criteria for REporting Qualitative research (COREQ) protocol was used⁹.

The institution has five surgical rooms, where an average of 613 surgeries are performed monthly. The study participants were nurses and nursing technicians who had been working in the OR for at least three months, regardless of their shift. The exclusion criteria were: nursing professionals who were on medical leave, leave of any kind, or vacation during the data collection period.

The first contact with the participants occurred at the workplace, during a departmental meeting attended by 25 nursing professionals. The OR nursing team consists of 32 professionals. At this meeting, the research objectives were presented, and those interested in participating were invited to sign up. Fourteen team members expressed interest and participated in the study.

Semi-structured interviews were conducted by the principal researcher, a senior nursing student in her tenth semester, in a private room provided by the institution, during working hours, at times previously agreed upon with each participant, in the morning, afternoon, or evening shifts. A pilot test was conducted with one professional, and since no semantic or structural adjustments were needed for the guiding questions during the interview, it was incorporated into the study's corpus.

Data collection concluded when all 14 professionals who had shown interest participated in the interview, and theoretical data saturation was observed. The quality of actions and interactions was sought and reflected in an ideal qualitative sample, confirming the researcher's conviction that the internal logic of the study object had been discovered¹⁰. After collection, the information was transcribed verbatim and later analyzed using content analysis techniques: pre-analysis, material exploration, and treatment of results, as well as inference and interpretation of data¹¹. It should be noted that no software was used for data management or coding.

All participants signed the Informed Consent Form, and pseudonyms were used in the presentation of the results to preserve anonymity: Professional 1 (P1), Professional 2 (P2), and so on. The research adheres to ethical principles and was approved by the university's research ethics committee under Opinion no. 6.256.784.

RESULTS

Fourteen professionals participated in the study, including four nurses (two male and two female) and ten nursing technicians (eight female and two male). The age range varied from 24 to 41 years. Through the analysis of the responses, the data were grouped into two categories, which were previously defined by the guiding questions of the study: surgical nursing team care during the intraoperative and immediate postoperative periods for patients undergoing tracheostomy, and challenges, difficulties, and health education related to tracheostomy.

Surgical nursing team care during the intraoperative and immediate postoperative periods for patients undergoing tracheostomy

The participants demonstrated knowledge regarding the indication for tracheostomy, as evidenced in the following statements: "[...] tracheostomy is indicated for patients who have been intubated for a prolonged period or have suffered a

more severe airway injury” (P6); “[...] typically after seven days of intubation, or when there is some problem, some trauma, that makes it necessary” (P14).

In general, they listed several nursing care tasks for individuals undergoing tracheostomy surgery: “[...] we confirm the full name, date of birth, allergies, the reason for the procedure, the name of the surgeon, monitor the patient, check vital signs, ensure the (venous) access is patent, assess pain, and verify the airways” (P8); “[...] care for bleeding, medications, oxygen, properly perform oral hygiene, suction the trachea first, then suction the nose and mouth” (P1).

Among the nursing care tasks, the need to suction the airways was emphasized during the interviews. Some participants described the technique they use and specific care instructions when performing the procedure: “[...] be mindful of the suction time. Allow breaks so the patient can catch their breath; usually, tracheostomized patients use supplemental oxygen. So, first, suction, then perform the dressing around it. You can also remove the endotracheal tube to clean it and check for any blockages. The metal tube is easier to clean” (P3); “[...] you have to be careful when suctioning the trachea, and only after can you suction the nostrils and then the mouth” (P7); “[...] first, we sanitize our hands, connect the suction catheter to the latex, turn on the vacuum suction, put on sterile gloves, and then fold the catheter to prevent it from suctioning the trachea. Insert the catheter, and once it is in, open it and begin suctioning with circular movements. It may be irrigated, but this is not recommended because you cannot suction all the saline you put in. Suction the trachea, then the nose, and lastly the mouth. The internal part of the suction device is washed with saline solution” (P13).

Tracheostomy dressing care was emphasized in the interviews as an important task. It is performed frequently due to excessive secretion production and the potential for bleeding. Additionally, there seems to be some disagreement regarding the sequence for changing the dressing and the tracheostomy securing strap: “[...] change the strap first and then the dressing. Always keep the patient well cleaned” (P2); “[...] change the dressing first and then the strap, because otherwise it will get dirty” (P4); “[...] perform the dressing with saline solution on the sides of the stoma, place two gauzes, one on each side, and then change the strap, always tying the knot to one of the sides” (P11).

Regarding the way the tracheostomy tube is secured, the participants expressed the following: “[...] I am not aware of any other method besides using a strap” (P1); “[...] I’ve never seen (fixation with tape/velcro)” (P2 and P4); “[...] I know the fixation tape, it has velcro, I think it’s safer, it doesn’t cause injury to the patient” (P6).

Challenges, difficulties, and health education related to tracheostomy

In order to ensure the safe execution of the tracheostomy procedure, the professionals highlighted challenges and difficulties in nursing care for patients during the intraoperative and immediate postoperative periods: “[...] it may not be a lack of theoretical knowledge; most people know what they need to do, but when it comes to the practice, it’s not something we see every day—tracheostomy. Those who are going to handle the tracheostomized patient feel insecure or afraid to touch that area [...]” (P3); “[...] my difficulty is when I have to suction. I get a little unsure, let’s say, about how much I can insert and about the saline solution—whether I can drip too much or not, so I see difficulty in that part” (P10).

One of the interview questions focused on the relevance of whether the professional provided health education to the tracheostomized patient and their family. The professionals described the following considerations: “[...] it would be necessary to explain to both parties what will be done, also giving instructions about tracheal cleaning” (P12); “[...] sometimes, there’s a lack of training for the patient and the family as well. The information provided to them is very minimal” (P6); “[...] I teach the suction technique and the risk of infection, so they know that they always need to wash their hands thoroughly” (P4).

Some responses highlighted the need for the healthcare institution to implement ongoing education on the topic for the professionals involved in the care of tracheostomized patients: “[...] we could have more training in this area as well” (P9); “[...] I see that sometimes we lack a bit of training in managing this patient because it involves an exclusive airway for the patient’s breathing. I think there is a lack of training in tracheostomy management” (P5).

DISCUSSION

The tracheostomy procedure, whether elective or emergency, requires technical and scientific knowledge, as well as skills from surgical nursing professionals, both during the intraoperative and immediate postoperative periods. It is essential that all healthcare professionals directly involved in care are aware of potential risks, complications, and treatments to ensure effective and safe care.

Tracheostomy is considered a vital procedure for saving lives in many conditions, and its indications are specific. The participants in this study demonstrated knowledge and listed reasons for performing the procedure, which align with the literature³. A study conducted in Oman, in the Middle East, aimed at assessing the effectiveness of knowledge and competence among healthcare providers in a hospital setting, found that 85.3% of respondents knew the exact indications for tracheostomy⁶. This shows that, even in different settings, nursing professionals have widespread knowledge about the indications for creating a stoma in the trachea.

In the hospital where the study was conducted, the technique used for creating tracheostomies is the surgical method in the OR. In this context, one participant noted items that are part of the surgical checklist. This checklist involves three distinct stages of application: sign-in, time-out, and sign-out, and includes items for checking the safety of the procedure, ensuring high visibility for the team, quick implementation, and low cost¹². One of its purposes is to prevent adverse events, which are defined as outcomes that result in harm to the patient and, in many cases, could be avoided by adopting patient safety measures^{12,13}. It is important to note that the failure or absence of information included in the surgical checklist can compromise the surgical process.

In surgical procedures, including tracheostomies, the adoption of safe and systematic practices can directly impact the quality of care and reduce adverse events. Surgical safety, as well as the reduction of mortality and complications, are among the World Health Organization's goals for patient safety, proposed by the Second Global Challenge titled "Safe Surgery Saves Lives," which led to the creation of the surgical checklist¹⁴.

The participants in this study highlighted nursing care provided to patients with tracheostomies. Among these, suctioning, humidification with saline solution, dressing changes, and cleaning the skin around the stoma and the tube are fundamental. These practices should be integrated with education for the healthcare team, the patient, and the caregiver.

The interviewees demonstrated familiarity with tracheal suctioning. It is known that suctioning is an essential aspect of effective airway management⁷, representing one of the primary strategies for minimizing the risk of complications. However, it requires proper training of professionals regarding the procedure.

A study conducted in Brazil assessing knowledge of identifying and managing tracheostomy-related emergencies and early complications among healthcare professionals showed that only 39.4% of participants knew the appropriate suction pressures, and 52% answered correctly regarding the proper duration of tracheal suctioning⁷. Results from a study conducted in Oman showed that 76.4% of participants were familiar with stoma care, and 85.3% understood that tracheal suctioning is traumatic and contributes to bleeding from the tube⁶. These results reinforce the importance of nurses recognizing the complexity of this intervention, providing and prescribing nursing care throughout the process, and addressing the various needs of the tracheostomized patient².

Regarding tracheostomy suctioning, the procedure is only indicated if the patient shows signs of low oxygen saturation, cyanosis, pulmonary auscultation with bubbling sounds, or visible secretion around the stoma¹⁴. In such cases, suctioning should be performed immediately, with prior nebulization and oxygenation, as well as strict measures to control any risk of infection¹⁴. Therefore, it is important to emphasize that the complexity of endotracheal suctioning requires skills to be properly learned so that the care can be performed adequately.

Given the increasing number of patients undergoing tracheostomy, the execution of safe care requires proficiency in cleaning, suctioning, weaning, decannulation, and managing related emergencies⁴. In addition to assessing the respiratory status of the patient and knowledge about tracheostomy, managing respiratory procedures, aseptic techniques, maneuvers, and the correct suctioning sequence, communication with the tracheostomized patient is

crucial¹⁵. Therefore, all the skills that ensure safe and comfortable care for these patients should be practiced repeatedly and refined.

The difficulty in eliminating secretions presented by the tracheostomized patient leads to the need for care in mobilizing the patient to allow for adequate bronchial hygiene and proper ventilation. During endotracheal suctioning, it is important to avoid injuries caused by the catheter to the tracheal mucosa and carina, which can lead to bleeding and tracheitis⁴. To ensure the effectiveness of all these cares, collaborative efforts from healthcare professionals, as well as independent nursing care with supervision by the nurse, are essential, from the preoperative phase to the late postoperative period. This continuity will allow for education in self-care, continuous monitoring, and the prevention and identification of complications¹⁶.

Regarding the need to correctly use suction pressure, it should not exceed 120 mmHg, as this could damage the mucosa. It should also not be too low (below 100 mmHg), as this would hinder secretion drainage. The catheter diameter is also important: if it is too small, it will not suction secretions; if it is too large, it may cause hypoxia.

Regarding suction time, the maximum should be 15 seconds with up to three repetitions. It is also recommended that suction care aim to properly oxygenate the patient before the procedure, as well as placing the catheter tip in sterile saline solution to clean the extension, applying suction, and ensuring that the catheter insertion depth does not exceed the length of the tracheostomy tube¹⁴.

As for cleaning the tracheostomy endotracheal tube, it should be done as needed based on the patient's condition and the presence of secretions¹⁷.

Tracheostomy tube changes should be planned, and the team performing the procedure should be aware of potential complications, as well as be secure and well-trained. The maturation of the stoma usually occurs after the fifth day of the postoperative period, and the first tracheostomy tube change can be safely performed by the surgical team. The original tube is removed, and the stoma is cleaned with sterile gauze. A new tracheostomy tube, usually made of metal, is then placed⁴. It is important for the nursing team to have knowledge of tube changes, as these professionals are typically responsible for organizing the necessary materials and assisting the medical team during the procedure.

Considering the current healthcare context, with a growing number of chronic diseases requiring invasive procedures, it is essential to respond to the diverse care needs of each professional, their competencies, and their ability to develop and apply them². Regarding nursing interventions, they need to be adequately systematized so they can be integrated into daily practice². To facilitate their replication and evaluation, nursing interventions should include information on what, how, and when they should be implemented¹⁶.

The nursing team's care to prevent skin and mucosal injuries associated with the presence of invasive devices in the lower airways includes dressings with saline solution and aqueous chlorhexidine, as well as changing the straps once per shift, using neck protectors like gauze around the tracheostomy, and applying oil to protect the skin¹⁸.

It is recommended to clean the tracheostomy at least once a day with 0.9% saline solution and also change the straps daily to ensure the integrity of the peristomal skin. It is important to keep the gauze clean and dry. The frequency of cleaning the stoma site will depend on the patient and the amount of secretion. In this regard, the importance of institutional protocols is emphasized to standardize nursing care and ensure safe practice in accordance with infection control standards.

Care for the tracheostomy tie change was mentioned by the participants in this study; however, many are unaware of alternative fixation methods. It is recommended to secure the tracheostomy with Velcro straps, as they are more comfortable for the patient, or to replace the tie with a soft, wider plastic structure¹⁸. Additionally, it is recommended to leave a two-finger space to avoid asphyxiation of the patient, as well as to use gauze in the space between the skin and the tracheostomy. However, cutting the gauze should be avoided to prevent the risk of the patient inhaling fibers or threads from the gauze¹⁹. Therefore, it is recommended to use whole gauze or a hydrocolloid dressing to prevent erythema and irritation of the skin around the tracheostomy²⁰.

The skin around the stoma should be kept clean and dry to prevent maceration and infection. It is also important to assess the presence of erythema, sensitivity, firmness, and the integrity of the peristomal skin. Dressings should be changed once per shift or as needed¹⁴.

It is worth noting that, although the instillation of saline solution directly into the tracheostomy is still a common practice, this procedure should be avoided due to the potential risk of decreasing oxygen saturation¹⁴.

Among the challenges and difficulties, the participants mentioned health education efforts for the tracheostomized patient and their family. This activity can be considered challenging as it requires prior knowledge and effective communication by nursing professionals. One strategy that can be used for this purpose is educational printed materials in the healthcare field²⁰, through which care instructions are provided to individuals via manuals, brochures, pamphlets, and leaflets. These materials enhance positive outcomes and improve clinical status, as well as adherence to care and self-care practices. Information from educational technology allows the tracheostomized patient and their family to review the content later, reinforcing verbal guidance and serving as a reference in case of doubts, helping with decisions and daily practices.

Health education should begin in the preoperative period, aiming to clarify any questions about the surgery and care of the tracheostomy tube. Furthermore, the importance of the nursing team in identifying the caregiver who will be involved in the care process and education for the care transition is emphasized, with the goal of improving the experience, promoting the development of self-care, and reducing complications²¹.

A study conducted to analyze evidence of care aimed at preventing complications in individuals with tracheostomies highlights the importance of ongoing education for the nursing team, the patient, caregivers, and family members during preoperative educational activities. These activities cover the surgery, demonstration of the tracheostomy tube, and routine care for the stoma¹⁸. These moments emphasize the need to invest in educating the nursing team regarding tracheostomy care, and therefore, guidelines for these care practices can be developed and disseminated. Providing preoperative education to tracheostomized patients is essential to explain the surgical procedure and how the tracheostomy will affect their ability to speak¹⁴.

There is strong evidence that collaborative multidisciplinary teams lead to the standardization of care, improved team communication, and better clinical outcomes. However, team-based approaches have been limited²². A study notes that adequate guidance can transform the experience of individuals with tracheostomies and facilitate the safe practice of self-care²¹. The literature suggests using new technologies and management tools, such as protocols, booklets, and videos, for patient and caregiver health education during the transition from hospital to home.

Based on the findings of this study, the need and importance of ongoing education for surgical nursing professionals are emphasized, as well as the use of realistic simulation-based exercises to improve knowledge and address gaps in technical skills.

The description of nursing professionals' knowledge regarding care, challenges, and difficulties related to patients with tracheostomies was limited to a single hospital institution and may not represent the national reality. However, the findings can prompt reflection on the care provided to this population and inform educational interventions for nursing professionals.

The writing of this study strengthens the theoretical-practical connection not only in academia but also in hospital institutions, long-term care facilities, and homes, where nursing care for individuals with tracheostomies is provided. It is believed that the situations described reflect the reality of many institutions across the country and that promoting theoretical-scientific knowledge will contribute to a new perspective aimed at improving daily practice.

CONCLUSION

This research described the care, challenges, and difficulties faced by the surgical nursing team when caring for individuals undergoing a tracheostomy during the intraoperative and immediate postoperative periods.

The participating professionals demonstrated knowledge of the indications for tracheostomy, emphasized the importance of precise airway suctioning, and pointed out discrepancies in the sequence for changing the dressing and securing strap. They also highlighted challenges and difficulties in providing nursing care to the patient during the intraoperative and immediate postoperative periods, as well as the imperative need for health education for the tracheostomized patient and their family, in addition to ongoing education on the topic for the professionals.

The study suggests that the concepts and practices of the surgical nursing team need to be updated due to gaps in knowledge regarding care and instructions for the tracheostomized patient. It is recommended that further research be conducted in different settings to broaden knowledge and develop the competencies and skills of nursing professionals to manage care for tracheostomized patients in a safe, qualified, and effective manner.

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