ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

POSTOPERATIVE COMPLICATIONS AND THEIR PREVENTION IN THE SURGERY OF TRACHEAL STENOSIS

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Abstract: In this article, we will thoroughly examine the main postoperative complications that may arise as a result of surgical intervention for scar stenosis of the trachea. Recommendations for the prevention of these complications will also be provided, which will enhance the safety and effectiveness of surgical treatment. A proper approach to preoperative preparation, the selection of anesthesia methods, and monitoring the patient's condition in the postoperative period can significantly reduce the risk of complications and improve treatment outcomes.

Key words: Postoperative complications, Tracheal scar stenosis, Surgical intervention, Prevention strategies, Preoperative preparation, Surgical safety, Complication management.

Introduction

Tracheal stenosis is a narrowing of the trachea caused by the formation of scar tissue, which can lead to serious respiratory problems. Surgical intervention is one of the primary treatment methods for this condition; however, like any surgery, it carries the risk of postoperative complications. In this article, we will examine the main complications that may arise following surgical treatment of tracheal stenosis, as well as preventive measures to minimize their occurrence.

Postoperative Complications:

* High complication rates: Historically, circular tracheal resection had high complication (up to 50%) and mortality (up to 25%) rates. Modern techniques have improved these figures, but complications remain a significant concern (9-45% complication rate, 0-20% mortality).

* Infectious complications: Suppurative complications are common (3-10%), due to the exposure of the airway during surgery and potential contamination.

* Tracheal anastomosis complications: These are the most significant, including:

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
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* Anastomotic dehiscence (leak): Leading to mediastinitis, anastomositis, and tracheal restenosis. Often caused by tension on the anastomosis.

* Restenosis: Narrowing of the trachea at the site of the anastomosis.

* Laryngeal complications: Laryngeal edema and bilateral vocal cord paralysis are possible, primarily due to damage to the recurrent laryngeal nerves.

* Other complications: These include:

* Suppurative mediastinitis: A serious, potentially life-threatening infection.

* Tracheobronchitis: Infection of the trachea and bronchi.

* Tracheo-vascular fistula: A dangerous complication resulting from erosion of a blood vessel into the trachea.

Prevention and Management of Complications:

* Surgical technique: Careful surgical technique, including meticulous hemostasis and avoidance of excessive tracheal mobilization, is crucial. Preserving the blood supply to the trachea is paramount. The authors discuss specific surgical maneuvers to minimize tension on the anastomosis.

* Conservative treatment: For early-stage inflammation or stenosis, conservative treatment (antibiotics, anti-inflammatory drugs, and inhalation therapy) is often effective.

* Endoscopic stenting: This may be useful for persistent stenosis.

* Tracheoplasty: If stenting fails, tracheoplasty may be considered.

* Tracheostomy: This may be necessary for severe laryngeal edema or other airway compromise.

Endoscopic Procedures:

* Endoscopic dilation using rigid bronchoscopes and tubes of increasing diameter is described. While effective for temporary improvement, this method can cause complications including tracheal perforation.

* The use of various endoscopic techniques (cryotherapy, electrocautery, laser therapy, and radiofrequency ablation) to treat tracheal stenosis is mentioned but criticized due to their limitations. The authors highlight bleeding and restenosis as potential problems.

* Stenting, particularly with Dumon stents (silicone-based), is discussed as a common minimally invasive treatment option.

Conclusion:

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AMERICAN ACADEMIC PUBLISHER
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The paper stresses the importance of meticulous surgical technique and careful postoperative management to minimize the risk of complications in tracheal surgery. It also presents an overview of different surgical and endoscopic approaches to the treatment of tracheal stenosis, weighing their advantages and disadvantages. The authors emphasize the need for further research in several areas, particularly concerning the comparison of different surgical techniques and a more detailed understanding of the factors that contribute to post-operative infections.

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