sustain the tension against the tracheal rings and furthermore to push the bovine pericardial patch toward the posterior wall, sealing the tear. The above-mentioned technique is proposed for surgical management of tracheal wall lacerations as it proved safe, effective and not technically demanding. The use of an endotracheal stent could be proposed but the urgent situation (almost impossible ventilation and oxygenation) led us to resolve the problem surgically. However, the employment of a covered expandable stent should be considered for the treatment of a tracheal or bronchial tear. The development of these stents allows the patient to continued outpatient surveillance to monitor for sealing tracheal tears [10]. Stent deployment commits the patient to continued outpatient surveillance to monitor for complications. Although uncommon these include granulation tissue formation, stent migration, halitosis and recurrent respiratory tract infections [10].

Iatrogenic tracheobronchial ruptures are mainly caused by emergency intubations [1]. Percutaneous dilational tracheostomies and double-lumen intubations do not show higher signs of complications compared with single-lumen intubations or conventional tracheotomies, if they are accompanied by verification through bronchoscopy [1]. Patients without any respiratory failure and a small tracheal laceration with less than 1 cm in length are well known as well in the relevant international medical literature. Early surgical treatment of the latter must be the therapy of choice.

References


eComment: Autologous or bovine pericardial patch for the repair of membranous tracheal wall lacerations?

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Barbetakis et al. [1] describe the successful repair of an iatrogenic tracheal laceration that was the complication of a double-lumen endotracheal tube insertion to perform an Ivor-Lewis esophagogastrectomy. A bovine pericardium patch reinforced by the gastric conduit was used to cover the tracheal laceration, after failure of their initial attempt to directly close the membranous wall with interrupted sutures. Bovine pericardium as a tracheal patch was also used to repair a membranous tracheal wall laceration by Knott et al. [2] and the authors experienced extrusion of the patch within the tracheal lumen four months after the operation that had resulted in acute airway obstruction.

Bovine pericardial strips have been used to reinforce the stapling line and to seal air leaks from the emphysematous lung tissue during lung volume reduction surgery (LVRS). Bovine pericardial strips used during LVRS were well documented in the past to cause late complications with migration of the strips into the bronchial lumen [3]. Bovine pericardium is considered to elicit an inflammatory reaction, which may be responsible for the erosion of the bronchial wall and migration [3].

Successful autologous pericardial patch repair of iatrogenic membranous tracheal wall lacerations have been reported in the past, with or without reinforcement of the repair with pedicled thoracic muscles [4, 5]. The pericardial patch is completely covered by the tracheal epithelium within a reasonable time period, it does not cause inflammatory reactions, is not rejected, and therefore, it consists of a more reliable tracheal substitute than the bovine pericardium [4, 5]. Indeed, possible pericardial inflammation secondary to induction radiotherapy might preclude the use of autologous pericardium for the repair of the membranous tracheal wall tear in the reported case.

References


eResponse: Should autologous irradiated pericardium be used for tracheal lacerations?

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We would like to thank Dr. Foroulis for his comment on the use of autologous and bovine pericardium. The pros and cons of bovine pericardium are well known as well in the relevant international medical literature. Our report refers to an urgent and life-threatening complication of double-lumen intubation which was treated successfully with the described technique [1]. The use of a previously irradiated autologous pericardium has a complete contraindication in our case, something that is admitted at the end of the comment [2].

References


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