

**Fig. 2 – Surgical specimen with subcutaneous cell tissue and 3 colloid cysts (circles).**

carcinoma in the second surgery. However, FNA that obtained colloid material ruled out that possibility. The definitive result of the pathology study, which classified them as colloid cysts, led us to believe that the subcutaneous cysts were the result of thyroid cells implanted in the lower skin flap during one of the 2 surgical interventions. The location of one of these cysts on the right sternoclavicular joint may have been due to the more extensive than usual dissection of a flap, and perhaps the implants were due to the rupture of a colloid cyst during surgery. These events, however, were not described in the surgical procedure.

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### Conflict of Interest

The authors have no conflict of interests to declare.

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Enrique Colás Ruiz\*, Antonio Quintáns Rodríguez, Santiago Linacero Martín, Edgardo Celi Altamirano, Libertad Martín Prieto

Servicio de Cirugía General y Aparato Digestivo, Hospital Universitario Fundación Alcorcón, Alcorcón, Madrid, Spain

\*Corresponding author.

E-mail address: [ecolas@fhacorcon.es](mailto:ecolas@fhacorcon.es) (E. Colás Ruiz).

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## Late Tracheal Perforation After Total Thyroidectomy. Conservative Management<sup>☆</sup>



### Perforación traqueal diferida tras tiroidectomía total. Manejo conservador

One of the most common surgeries performed today in general surgery units is thyroidectomy, which provides good results with low associated morbidity and mortality. The incidence of complications varies depending on the experience of the surgeon, and a perforated trachea is a very uncommon complication.

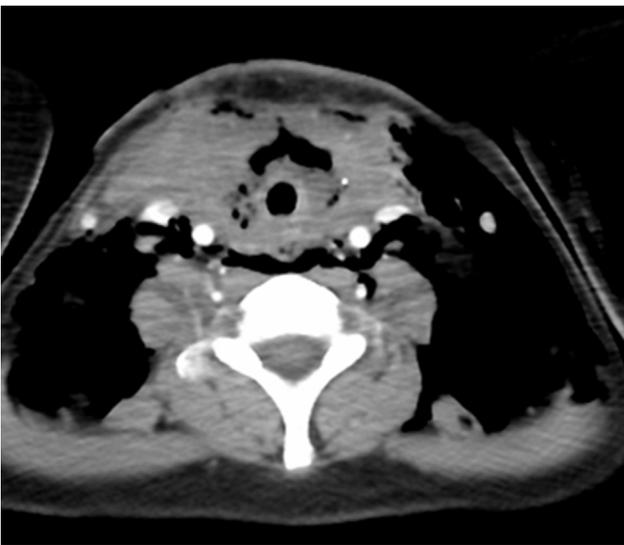
We present the case of a 46-year-old woman who was referred to us for surgical treatment due to Graves-Basedow

disease, with grade 3 goitre and ophthalmopathy. Total thyroidectomy was performed with the identification of the parathyroid glands and both recurrent laryngeal nerves. There were no incidences during surgery, and immediate patient progress was satisfactory. Nine days later, the patient came to the emergency department due to progressive facial and neck swelling and a feeling of dyspnoea brought on by a sudden coughing episode. Upon examination, we observed

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**Fig. 1 – Photograph of the patient with progressive facial and neck inflammation after an abrupt episode of coughing.**



**Fig. 2 – Extensive emphysema dissecting deep cervical planes bilaterally, with greater involvement of the left side; extensive pneumomediastinum; tracheal perforation point probably located in the anterolateral wall of the lower third of the trachea.**

subcutaneous facial, cervical and left thoracic emphysema, with normal lung auscultation (Fig. 1). A computed tomography (CT) scan revealed cervical emphysema (Fig. 2). The surgical wound was opened, which revealed the discharge of purulent material and air that coincided with respiratory movements and cough. With the diagnosis of a tracheal fistula, laryngoscopy confirmed the presence of a small orifice in the anterior side of the trachea at the union of the cricoid cartilage. The patient was hospitalised and treated with conservative antibiotic treatment (piperacillin-tazobactam), low doses of corticosteroids and daily dressing changes. The patient had a favourable progress and was discharged 8 days later and after closure of the tracheal fistula and deferred wound closure.

Iatrogenic tracheal rupture is very uncommon and has been more commonly described as a complication of external radiotherapy, or rather after airway manipulation (orotracheal intubation, bronchoscopy) or cervical and mediastinal surgery.<sup>1,2</sup>

Nonetheless, tracheal perforation associated with thyroidectomy in particular is extremely rare. In one study, Gosnell et al. identified an incidence of tracheal perforation of 0.06%. Risk factors for tracheal injury are female sex, thyrotoxic goitre, prolonged intubation with a high-pressure endotracheal balloon, use of diathermia (especially with heavy bleeding) and uncontrolled persistent cough in the postoperative period.<sup>3,4</sup> Most of these risk factors were present in our patient.

Tracheal injury during thyroidectomy has also been reported in case series, and 2 clearly differentiated scenarios are defined according to the identification of the lesion: (1) the first case is when the lesion is identified during the surgical procedure and is immediately repaired with absorbable sutures; and (2) the second scenario is extremely rare and happens when the injury is not detected by the surgeon during the initial procedure and is discovered after several days, typically with cervical and facial swelling, hoarseness, retrosternal pain and dyspnoea, coinciding with a vigorous coughing episode.<sup>1,4</sup>

Among the possible causes of this type of lesions, and particularly in our case, the main aetiological agent that has been contemplated is the effect of electro-coagulation, which, although very useful for the control of bleeding, has the potential risk for damaging surrounding structures by lateral heat dispersion. It has also been suggested that tracheomalacia subsequent to tracheal compression by a large goitre over an extended period of time may be another possible cause or predisposing factor for deferred tracheal perforation.<sup>5,6</sup>

The diagnosis is clinical and based on details of the medical history, a high degree of suspicion and subcutaneous emphysema on palpation. This can be confirmed with flexible or rigid bronchoscopy to locate the tracheal rupture; normal bronchoscopy results, however, do not rule out the diagnosis. A CT scan is useful to dismiss other causes of subcutaneous emphysema, such as oesophageal perforation or pneumothorax.<sup>1,4</sup>

The recommended treatment varies depending on the cause and the patient's condition. Patients without respiratory distress, with symptoms in resolution and no evidence of infection can be managed conservatively with intravenous antibiotic coverage. In the remainder, surgical treatment

should be done without delay, and control of the airway should be a priority. The team should be prepared to perform an emergency tracheostomy, if necessary, although a rapid sequence of anaesthesia induction and orotracheal intubation under optical control with the placement of the endotracheal balloon distal to the injury site is normally sufficient to control the airway. In this type of intubation, positive pressure should be avoided, which can worsen subcutaneous emphysema and lead to respiratory distress. As for the surgical intervention, primary repair is indicated with absorbable sutures over the viable tracheal edges, reinforced with a muscle flap.<sup>7</sup> There are also descriptions of the use of patches with a combination of human fibrinogen and human thrombin (TachoSil<sup>®</sup>) to protect the sutures.<sup>1</sup>

In our case, given the haemodynamic and respiratory stability of our patient, we decided to opt for a conservative approach. The patient continues to be seen in the surgical outpatient consultation with no further complications to date.

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Elena González-Sánchez-Migallón\*, Pilar Guillén-Paredes, Benito Flores-Pastor, Joana Miguel-Perelló, José Luis Aguayo-Albasini

Servicio de Cirugía General y del Aparato Digestivo, Hospital J.M. Morales Meseguer, Murcia, Spain

\*Corresponding author.

E-mail address: [elenagsm77@gmail.com](mailto:elenagsm77@gmail.com)

(E. González-Sánchez-Migallón).

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## Regenerative Multiple Hepatic Nodular Hyperplasia Associated With Oxaliplatin<sup>☆</sup>



### Hiperplasia nodular regenerativa hepática múltiple asociada a oxaliplatino

In oncological patients who present solid hepatic lesions, it is necessary to rule out liver metastases of their primary neoplasm. A small number of these patients may have developed other very uncommon tumours, and reaching a correct preoperative differential diagnosis becomes very complex. We present the case of a patient with multiple nodular regenerative hyperplasias (NRH) of the liver associated with oxaliplatin.<sup>1-5</sup> We also discuss the secondary hepatic effects of oxaliplatin and the clinical management of these patients.

The patient is a 49-year-old woman with a history of left laparoscopic hemicolectomy in 2010 due to a 3 cm well-differentiated adenocarcinoma of the colon, pT3N0M0, with

perineural invasion. She was treated with XELOX (oxaliplatin 130 mg day 1 and Xeloda<sup>®</sup> 1000 mg/m<sup>2</sup>/12 h for 14 days, every 21 days) for 6 months. Other conditions in her medical history included: ovarian cysts, obesity (BMI: 36), non-insulin-dependent diabetes mellitus, dyslipidaemia and multinodular goitre; Premm Model 1.2; hereditary nonpolyposis cancer risk 7%; negative phenotype for instability microsatellite (positive MLH1, MSH2, MSH and PMS2). Thirty months after surgery, a CT scan detected hepatic steatosis, a new focal hypervascular lesion measuring 30 mm×20 mm between segments VI and VII, another 8.5 mm lesion in segment IV showing enhancement in portal phase I, and mild mesenteric fat stranding compatible with mesenteric panniculitis, but no signs of portal

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