

gammagraphy may be normal or show multiple small, peripheral repletion defects. The diagnosis of pulmonary tumor embolism requires finding tumor cells in the lung vasculature. Cervical cancer is the second most frequent cause of morbidity and mortality related with cancer among women in developing countries: 371,200 new cases each year, with a 50% mortality rate. The incidence of invasive cervical cancer is related with age, with a mean age at the time of diagnosis of 47 in the United States. As for the histopathology, squamous carcinoma represents 80% of cervical cancers, adenocarcinoma 15% and adenosquamous carcinoma between 3% and 5%. The lesion may present as a superficial ulceration, an exophytic tumor of the external cervix or infiltration of the cervix. 15% of patients show no visible lesion because the carcinoma is inside the endocervical canal. Cervical cancer may propagate by direct extension in the uterus, vagina, parametrium, peritoneal cavity, bladder or rectum, and by lymphatic or hematogenous dissemination.⁵

References

1. Mutlu GM, Factor P. Pulmonary tumor embolism of unknown origin. *Mayo Clin Proc.* 2006;81:721.

2. Mizumoto C, Hara M, Futai R, Sawanishi T, Shirakawa T, Shimoyama H, et al. Tumor microembolism presenting as characteristic patterns of pulmonary perfusion on lung scanning: a case report. *J Cardiol.* 2005;45:33-9.
3. Roberts KE, Hamele-Bena D, Saqi A, Stein CA, Cole RP. Pulmonary tumor embolism: a review of the literature. *Am J Med.* 2003;115:229-32.
4. Chinen K, Kazumoto T, Ohkura Y, Matsubara O, Tsuchiya E. Pulmonary tumor thrombotic microangiopathy caused by a gastric carcinoma expressing vascular endothelial growth factor and tissue factor. *Pathol Int.* 2005;55:27-30.
5. Schriener RW, Ryu JH, Edwards WD. Microscopic pulmonary embolism causing subacute cor pulmonare: a difficult antemortem diagnosis. *Mayo Clin Proc.* 1991;66:146.

Alberto Caballero Vázquez,* Cintia María Merinas López,
Ana Dolores Romero Ortiz

*Servicio de Neumología, Hospital Universitario Virgen de las Nieves,
Granada, Spain*

* Corresponding author.

E-mail address: albertocaballerovarez@yahoo.es
(A. Caballero Vázquez).

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Asymptomatic Pneumomediastinum After Wisdom Tooth Extraction[☆]

Neumomediastino asintomático tras extracción cordal

Dear Editor:

The surgical extraction of the third molar is the most frequently carried out procedure in oral surgery.¹ Common complications include pain, bleeding, infection, perforation of the maxillary sinus and nerve injury.² Pneumomediastinum and subcutaneous emphysema are considered to be exceptional, and we therefore present the case of a patient who developed such complications.

A 30-year-old patient came to the emergency department due to crepitations in the face, neck and thorax after the extraction of the right mandibular third molar the previous day. The patient referred no dyspnea, pain or tumefaction. Upon exploration, the patient was hemodynamically stable, with an oxygen saturation of 100% and evident subcutaneous emphysema on the right side of the face, laterocervical region and right side of the upper thorax. Work-up was normal; cervical and thoracic radiography showed important subcutaneous emphysema and pneumomediastinum, and computed tomography (CT) was done (Fig. 1). The patient was admitted to hospital for prophylactic antibiotics and observation. The evolution was favorable, with a progressive reduction in the emphysema,



Fig. 1. Cross-sectional CT images of the mandibular, inferior cervical and superior mediastinal areas. There is observed widespread emphysema that dissects the bilateral cervical muscle planes and affects the parapharyngeal and prevertebral spaces, floor of the mouth, submandibular space and posterior cervical space, reaching the mediastinum and causing pneumomediastinum. These findings are asymmetrical and more evident on the right side.

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with no apparent complications, and the patient was therefore discharged four days later.

Subcutaneous emphysema as a complication of oral surgery is infrequent (in a prospective study of 100 complications due to molar extraction, there were no patients with this pathology).² It is produced by the entrance of air in the facial planes of the face and neck through the area of the wisdom tooth extraction. Factors that predispose patients to emphysema have been described, the most frequent of these being the use of a drill³ (with air and water turbines) in up to 80% of cases, which introduces pressurized air at up to 16 mmHg. The roots of the first, second and third molars are directly connected with the sublingual and submandibular space. Meanwhile, the sublingual space is connected to the pterygomandibular, parapharyngeal and retropharyngeal spaces. Under pressure, the air enters through the molar roots to the retropharyngeal space, which is connected to the mediastinum. The symptoms may vary depending on the quantity of air, its location and the presence or absence of infection. Thus, we may find anywhere from a simple, self-limiting, subcutaneous emphysema that is practically asymptomatic to, if deeper planes are dissected, pneumomediastinum, pneumothorax or pneumopericardium that, when associated with infection, can cause cellulitis, Lemierre syndrome and mediastinitis.^{3,4} The majority of patients, however, are paucisymptomatic, like our patient. On physical examination, there are characteristic crepitations to palpation of the thoracic and cervical regions, and Hamman's sign may also be present³ (synchronic crunching with heartbeats), while there may be hypoventilation in the lung fields and deviation of the trachea if there is pneumothorax. The differential diagnosis is established with angioedema, anaphylactic reaction, hematoma and cellulitis.^{3,5} The diagnosis is radiological, using simple radiography in order to demonstrate the presence of air and CT to rule out associated collections. Emergency surgical decompression is required if there is cardiovascular collapse or obstruction of the airway, but this is uncommon. If the patient is asymptomatic, conservative treatment is recommended, with hospitalization under observation and prophylactic antibiotics in order to rule out the development of an infection. This is necessary because the use of non-sterile air and water during molar extraction has been described as a risk factor for infection.⁶ In most cases, the subcutaneous emphysema will begin to disappear in 3–5 days. It is important to advise patients to avoid high intraoral pressures as this could increase the introduction of air into the cervical area.

We conclude that the development of subcutaneous emphysema and pneumomediastinum during wisdom tooth extraction is a very uncommon complication, but that it should be kept in mind if an air turbine is used.

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Conflicts of Interest

The authors declare having no conflicts of interest.

References

1. Kunkel M, Morbach T, Kleis W, Wagner W. Third molar complications requiring hospitalization. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2006;102:300–6.
2. Kunkel M, Kleis W, Morbach T, Wagner W. Severe third molar complications including death—lessons from 100 cases requiring hospitalization. *J Oral Maxillofac Surg.* 2007;65:1700–6.
3. Abadal JM, Álvarez MJ, De la Torre J, Guerra AB. Emfisema subcutáneo y neumomediastino secundarios a extracción dental. *Radiología.* 2002;44:27–9.
4. Chen S-C, Lin F-Y, Chang K-J. Subcutaneous emphysema and pneumomediastinum after dental extraction. *Am J Emerg Med.* 1999;17:678–80.
5. Ouahes N, Petit A, Poirier F, Sigal-Nahum M. Subcutaneous emphysema and pneumomediastinum following dental extraction. *Dermatology.* 1993;186:264–5.
6. Gamboa Vidal CA, Vega Pizarro CA, Almeida Arriagada A. Subcutaneous emphysema secondary to dental treatment: case report. *Med Oral Patol Oral Cir Bucal.* 2007;12:76–8.

Pilar Guillén-Paredes,^{a,*} Vania Novoa-Juiz,^b
Luis Carrasco-González^a

^a *Servicio de Cirugía General y Digestiva, Hospital Universitario Morales Meseguer, Murcia, Spain*

^b *Servicio de Otorrinolaringología, Hospital Universitario Morales Meseguer, Murcia, Spain*

* Corresponding author.

E-mail address: magirapi@hotmail.com (P. Guillén-Paredes).

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Osteonecrosis of the Jaw in a Patient With Advanced Non-Small-Cell Lung Cancer Receiving Bevacizumab[☆]

Osteonecrosis mandibular en un paciente con cáncer de pulmón no microcítico avanzado tratado con bevacizumab

Dear Editor:

Osteonecrosis of the jaw (ONJ) occurs in up to 18% of patients being treated with bisphosphonates due to bone metastases.¹ Recent evidence suggests that bevacizumab, a new antiangiogenic drug, could alone induce ONJ and that the combination of both drugs can increase the risk for ONJ.^{2,3} We present herein a case

of ONJ attributed to bevacizumab in a patient with advanced lung cancer, and we review the recent understanding on this subject.

A 57-year-old male was diagnosed with non-small-cell lung cancer. At the time of the diagnosis, the patient presented bone metastases in the right femur and iliac bone, and he received palliative radiotherapy combined with 4 mg of intravenous zoledronic acid once a month. At the same time, combined chemotherapy was begun with cisplatin (75 mg/m²) and paclitaxel (75 mg/m²) every 3 weeks. After completing 3 cycles, treatment with bevacizumab was added at a dose of 15 mg/kg every 3 weeks up to a total of 8 cycles. While the patient received this new treatment for 3 weeks, he reported low-grade fever with pain in the right jaw and painless swelling of the right eyelid. The patient used dentures and had mentioned no recent history of oral or dental surgery. Upon examination, we observed an area of uncovered bone at the back of the right jaw measuring 1.8 cm × 0.5 cm, which had a necrotic appearance with inflammation of the surrounding soft tissue (Fig. 1). The samples obtained with a swab of the area of the necrotic bone were

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