by DiSaia et al. in ovarian GCTs, and termed chemotherapeutic retroconversion.[3]

Somatic-type malignancy occurs in 3–6% of GCTs, almost always in postpubertal patients (aged 15–68).[1,2,4] Although most affected patients have teratomatous GCTs,[1,2,5] somatic-type malignancy has occasionally been reported in other germ-cell tumors including yolk-sac and spermatocytic tumors.[6] The time elapsing between GTC diagnosis and the appearance of STMs tends to vary widely, ranging from simultaneous presentation to a latency period of up to 30 years. The interval for carcinomas (108 months) is longer than for sarcomas (20 months).[5]

Reported STMs include various types of sarcoma, epithelial malignancies and hematological malignancies.[7] Sarcomas are undoubtedly the most common type of malignancy; although rhabdomyosarcomas account for over half the STMs recorded, leiomyosarcomas, angiosarcomas and other STMs have occasionally been reported.[8,9] Carcinomas tend to be mostly to be classed as adenocarcinomas NOS[6]; there are very few reports of neuroendocrine tumors, particularly in testicular lesions.

Generally speaking, the prognosis for these tumors is not affected when the STM is located in the testicle; however, development of STM in metastases—as in the present case—is associated with an increased risk of mortality.[8]

The role of chemotherapy in teratomas with malignant neuroendocrine transformation has not been fully established.[7] Complete surgical resection has traditionally been the treatment of choice when malignant transformation occurs at a single site. Metastatic or unresectable tumors will generally require multimodal management including chemotherapy in addition to loco-regional approaches. Although patients tend to respond poorly to cisplatin-based treatments, some tumors may respond to the specific chemotherapy used for the somatic counterpart.[10]

Summarizing, in this rare case a patient with mixed germ-cell tumor of the testis and metastasis, treated with chemotherapy, seven years later developed an atypical carcinoid tumor, with a somatic-like malignant component, in a metastatic mature cystic teratoma of the lung. Comprehensive pathological examination is essential for the identification of somatic neoplasms within germ cell tumor metastases.

References

1. Ulbright TM, Amin MB, Balzer B, Berney DM, Epstein JI, Guo C, et al. Germ cell tumours. In: Moch H, Humphrey PA, Reuter VE, Ulbright TM, editors. WHO classification of tumours of the urinary system and male genital organs. 4th ed. Lyon: IARC Press; 2016. p. 189–226.
2. Colecchia M, Necchi A, Paolini B, Nicolai N, Salvioni R. Teratoma with somatic-type malignant components in germ cell tumors of the testis: a clinicopathologic analysis of 40 cases with outcome correlation. Int J Surg Pathol. 2011;19:321–7.
3. DiSaia PJ, Saltz A, Kagan AR, Morrow CP. Chemotherapeutic retroconversion of immature teratoma of the ovary. Obstet Gynecol. 1977;49:346–50.
4. Ahmed T, Bosl GJ, Hajdu SI. Teratoma with malignant transformation in germ cell tumors in men. Cancer. 1985;56:860–3.
5. Rice KR, Magers MJ, Beck SD, Cary KC, Einhorn LH, Ulbright TM, et al. Management of germ cell tumors with somatic type malignancy: pathological features, prognostic factors and survival outcomes. J Urol. 2014;192:1403–9.
6. Magers MJ, Kao CS, Cole CD, Rice KR, Foster RS, Einhorn LH, et al. "Somatic-type" malignancies arising from testicular germ cell tumors: a clinicopathologic study of 124 cases with emphasis on glandular tumors supporting frequent yolk sac tumor origin. Am J Surg Pathol. 2014;38:1396–409.
7. Lee SY, Jo YM, Lee J, Cha SI, Park TI, Kim CH. Neuroendocrine carcinoma arising in a mediastinal teratoma with pulmonary metastasis: a case report and the chemotherapy response. Intern Med. 2015;54:1277–80.
8. Guo CC, Punar M, Contreras AL, Tu SM, Pisters L, Tamboli P, et al. Testicular germ cell tumors with sarcomatous components: an analysis of 33 cases. Am J Surg Pathol. 2009;33:1173–8.
9. Malagón HD, Valdez AM, Moran CA, Suster S. Germ cell tumors with sarcomatous components: a clinicopathologic and immunohistochemical study of 46 cases. Am J Surg Pathol. 2007;31:1356–62.
10. Donadio AC, Motzer RJ, Bajorin DF, Kantoff PW, Sheinfeld J, Houldsworth J, et al. Chemotherapy for teratoma with malignant transformation. J Clin Oncol. 2003;21:4285–91.

Ana Vallejo-Benítez,[a,*] Enrique Rodríguez-Zarco,[a] Sofia Pereira-Gallardo,[a] Laura Macías-García[b]

[a] *Hospital Universitario Virgen Macarena, Seville, Spain*
[b] *Department of Cytology and Histology Normal and Pathological, University of Seville, Seville, Spain*

* Corresponding author.
E-mail address: anvaben@hotmail.com (A. Vallejo-Benítez).

1579-2129/
Published by Elsevier España, S.L.U. on behalf of SEPAR.

A Rare Case of Incidental Tracheal Lipoma

Caso excepcional de un hallazgo casual de lipoma traqueal

Dear Editor,

Primary tracheal tumours are uncommon, with an incidence of 0.2/100 000 population.[1] In adults, only 10%–20% of tracheal tumours are benign, including chondroma, papilloma, fibroma, haemangioma. Tracheal lipoma is extremely rare and only few cases have been reported in the literature.[1–8] This tumour typically presents with non-specific symptoms and signs as dry cough and wheezing and infrequently with respiratory failure. Its resection is required and it can be achieved by both endoscopically and open surgery.

Here we report the case of an incidental tracheal lipoma successfully treated by rigid tracheobronchoscopy.

A 79-year-old male, former smoker with a history of arterial hypertension, right Meckel's cave meningioma and previous retroperitoneal non-Hodgkin's lymphoma, was admitted to our Thoracic Surgery Unit to evaluate a broad-based polypoid tracheal lesion incidentally discovered during the endoscopic CO_2 laser cordectomy performed for an in situ squamous cell carcinoma of the left true vocal cord. The patient reported no cough, dyspnoea, wheezing, stridor or haemoptysis. The physical examination was unremarkable. Chest X-ray was normal. Computed tomography (CT) scan showed an intratracheal polypoid growth arising from the anterolateral tracheal wall. Flexible tracheobronchoscopy confirmed the presence of a broad-based polypoid lesion growing from the anterior tracheal wall, in correspondence of the IV–V tracheal rings. The tumour was about 7 mm in diameter with a smooth and yellowish surface. It obstructed about 50% of the tracheal lumen (Fig. 1A). The uneventful endoscopic biopsy revealed chronic tracheitis with squamous hyperplasia and mild dysplasia. Despite the benign histological finding and the patient's asymptomatic status, we decided to remove the lesion because of the recent history of glottis carcinoma. The patient underwent tumour excision with diode laser by rigid tracheobronchoscopy. Complete clearance of the airways was obtained. The postoperative course was unremarkable. Histopathological examination revealed

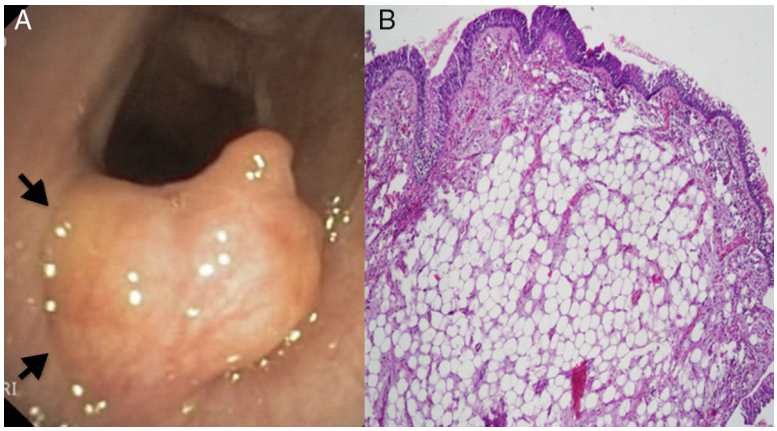

Fig. 1. (A) Flexible tracheobronchoscopy showing a well defined, yellowish, smooth, lobulated, broad-based tumour rising from the mucosal layer (arrows) of the anterior tracheal wall. (B) Microscopic image of the resected specimen showing a not encapsulated tumour localized in the subepithelial layer, composed of mature adipocytes without cellular atypia (hematoxylin-eosin).

a subepithelial lipoma (Fig. 1B). The flexible tracheobronchoscopy follow-up revealed no local recurrence 12 months after the endoscopic treatment.

Airways lipoma is a remarkably rare tumour, representing only 3.2%–9.5% of tracheobronchial tree benign neoplasms.[3] It primarily involves the main stem bronchi and, infrequently, the tracheal wall. In a series reported by Politis et al only 3 of 50 tracheobronchial tree lipomas were located in the trachea.[5] Lipoma arises from the submucosal fat of the tracheobronchial tree and can extend between the cartilage rings into the peritracheal tissue.[4]

Patients with tracheal lipoma are primarily middle-aged men.[3] They are generally symptomatic, presenting with dry cough, wheezing, dyspnoea and stridor. Haemoptysis is unusual because lipoma is not typically ulcerative. These symptoms usually occur late, when the tracheal lumen is occluded by 50%–70%, and they are frequently misinterpreted as asthma or chronic bronchitis. To date, ours is the second case of asymptomatic tracheal lipoma reported in the literature. The previous one was occasionally discovered during a flexible tracheobronchoscopy performed for a solitary pulmonary nodule.[3]

Regarding radiological imaging, chest X-ray is usually normal, but it is always performed in presence of respiratory symptoms to exclude other differential diagnosis.[4] Chest CT scan or chest magnetic resonance imaging, with their high specificity for fat, should be suggested for the diagnostic management of tracheal lipoma since they can give information not only about the location and the nature of this endotracheal growth but also about its extension into the peritracheal tissues.[9]

The gold standard in the diagnosis of tracheal lipoma is the flexible tracheobronchoscopy. Macroscopically airways lipoma looks as a yellowish, lobulated, pedunculated or broad-based, fatty submucosal growth. Preoperative biopsy by flexible tracheobronchoscopy is still controversial. Some authors believe that a preoperative histologic diagnosis is essential for an accurate treatment planning. Conversely, others consider it a dangerous manoeuvre because of the risk of bleeding with consequent airways occlusion.[2–4] Additionally, endoscopic biopsy sometimes results in a non-diagnostic histopathological report due to the tracheal lipoma capsule resistance to the biopsy forceps.[10] In our opinion, if the bleeding risk is acceptable, a biopsy should be performed preoperatively by flexible tracheobronchoscopy in order to exclude other differential diagnosis like lipomatous hamartomas. Otherwise, it should be performed together with the tumour resection via rigid tracheobronchoscopy.

The treatment of tracheal lipoma is its excision by tracheobronchoscopy or, in select cases, by tracheal resection with end-to-end anastomosis. The endoscopic excision can be successfully performed with laser or electrosurgical snaring forceps, cryotherapy or argon plasma coagulation via flexible or rigid tracheobronchoscopy.[1,3,7,8] The choice of one of these endoscopic techniques should be left to the operator's experience and preference. So far, no local recurrence has been reported after endoscopic treatment. Only few cases of tracheal lipoma have been treated by tracheal resection and reconstruction.[2,4] In these cases preoperative biopsy was not performed and the tracheal lipoma appeared as a wide broad based polypoid tumour, with extension beyond the tracheal wall only in one case.[2,4] Despite full and uneventful recovery in all published cases, tracheal resection is generally related to an overall morbidity and mortality of 12%–44% and 0.2–4% respectively.[11,12] Moreover, about 5% of patients with postoperative complications requires tracheostomy or further surgical procedure to treat post-operative stenosis or anastomotic dehiscences.[12] Thus, surgical resection should be performed only in selected cases.

Tracheal lipoma is an infrequent finding that may be considered as one of the possible alternative diagnoses of treatment-resistant asthma and chronic bronchitis. The endoscopic treatment of tracheal lipoma is effective and safe. It should be recommended as the first approach to restore tracheal clearance. Tracheal resection and reconstruction should be considered only in selected cases when the histopathological examination provides evidence of malignancy or the radiological imaging shows tumour extension through the tracheal wall and the endoscopic treatment fails.

References

1. Mota VT, Maia JG, Barbosa AT, Fernandes DF, Rocha EB. Tracheal lipoma mimicking obstructive lung disease. J Bras Pneumol. 2010;36:152–5.
2. Chen TF, Braidley PC, Shneerson JM, Wells FC. Obstructing tracheal lipoma: management of a rare tumor. Ann Thorac Surg. 1990;49:137–9.
3. Morton SE, Byrd RP, Fields CL, Roy TM. Tracheal lipoma: a rare intrathoracic neoplasm. South Med J. 2000;93:497–500.
4. Bates CA, Rahamim J. Tracheal lipoma. Thorax. 1989;44:980.
5. Politis J, Funahashi A, Gehlsen JA, DeCock D, Stengel BF, Choi H. Intrathoracic lipomas. Report of three cases and review of the literature with emphasis on endobronchial lipoma. J Thorac Cardiovasc Surg. 1979;77:550–6.
6. Tayama K, Takai E, Ueda T, Yano T, Ichinose Y. Tracheal lipoma obstructing the right main bronchus: report of a case. Surg Today. 1996;26:1017–9.
7. Nassiri AH, Dutau H, Breen D, Colchen A, Quiot JJ, Nguyen B, et al. A multicentre retrospective study investigating the role of interventional bronchoscopy techniques in the management of endobronchial lipomas. Respiration. 2008;75:79–84.
8. Wu B, Chen C, Liao W, Cheng W. Life-treating tracheal benign tumor: lipoma. Intern Med. 2016;55:1677–8.
9. Ko JM, Jung JI, Park SH, Lee KY, Chung MH, Ahn MI, et al. Benign tumors of the tracheobronchial tree: CT-pathologic correlation. AJR. 2006;186:1304–13.
10. Shah H, Garbe L, Nussbaum E, Dumon JF, Chiodera PL, Cavaliere S. Benign tumors of the tracheobronchial tree. Endoscopic characteristics and role of laser resection. Chest. 1995;107:1744–51.

11. Rotolo N, Cattoni M, Imperatori A. Complications from tracheal resection for thyroid carcinoma. Gland Surg. 2017;6:574–8.
12. Bibas BJ, Terra RM, Oliveira AL, Tamagno MF, Minamoto H, Cardoso PF, et al. Predictors for postoperative complications after tracheal resection. Ann Thorac Surg. 2014;98:277–82.

Nicola Rotolo,[a,*] Maria Cattoni,[a] Stefano La Rosa,[b] Andrea Imperatori[a]

[a] *Center for Thoracic Surgery, Department of Medicine and Surgery, University of Insubria, Varese, Italy*

[b] *Service of Clinical Pathology, Institute of Pathology, Lausanne University Hospital, Lausanne, Switzerland*

* Corresponding author.
E-mail address: nicola.rotolo@uninsubria.it (N. Rotolo).

1579-2129/

Pulmonary Foreign Body Granulomatosis 11 Years After Injection of a Cosmetic Dermal Filler

Granulomatosis Pulmonar De Cuerpo Extraño 11 Años Después De La Inyección De Un Relleno Dérmico Cosmético

Dear Editor,

Pulmonary foreign body granulomatosis is a rare condition where a granulomatous inflammation reaction to foreign bodies occurs in the lungs.[1] It is usually secondary to intravenous injection of pulverized pharmaceutical tablets or by nasal inhalation of drugs containing insoluble binders.[2]

Cosmetic dermal fillers can also produce a foreign body reaction of the skin with multinucleated giant cells that can happen weeks or years after the injection of a cosmetic filler.[3] Its clinical incidence has been reported to range from 0.02% to 1%.[4]

We report a case of a female patient with 66 years old, ex-smoker (50 pack-years), with a history of bilateral recurrent uveitis, Parkinson's disease, depression, alcoholism and multiple plastic surgeries. She had had a cosmetic dermal filler facial injection in 1994.

Respiratory symptoms appeared after an episode of facial cellulites for which the patient was admitted to the Dermatology nursery. She presented with erythema and edema of the face, with tender areas at the inter-ciliary region and naso-genian sulc (Fig. 1A). Biopsies of these areas were suggestive of granulomatous reaction foreign body-*like* associated with lipidic material (lipogranulomas). She was first treated with antibiotics, topical injection of 5-fluoracil and betamethasone with only partial improvement and the need for surgical debridement. Histological exam of the excised lesion showed chronic inflammatory reaction with multiple lymphocytes, epithelioid histiocytes and small rare granulomas with giant multinucleated cells, associated with round multisized vacuoles, predominantly extracellular and non-refringent (Fig. 1B). These changes were interpreted as foreign body granulomatous reaction to the cosmetic dermal filler injected 11 years earlier.

She was first evaluated at the pulmonology clinic in 2005 for a 6 month history of productive cough, dyspnea, pleuritic right chest pain and weight loss of 8 kg.

High resolution computerized tomography of the lungs (HRCT-L) showed mediastinal adenopathies and a micronodular milliary pattern of the upper lobes with ground glass areas (Fig. 1C) as well as interstitial fibrosis at the lower lobes. Functional respiratory assessment showed air trapping (RV 145%) and reduced DLCO (DLCO 42%, DLCO/VA 59%). Auto-immune blood tests, angiotensin conversion enzyme and HIV, HBV and HCV serologies were negative. Broncho-alveolar lavage was lymphocyte predominant (44%, CD4:CD8=14) and bacteriological, mycological and microbacteriological exams were negative. Transbronchial biopsies revealed non necrotizing granulomas with a vasculocentric distribution and with giant multinucleated cells foreign body *like* (Fig. 1D).

The hypothesis of lung granulomatous disease secondary to the injection of a cosmetic dermal filler was admitted. The patient was started on prednisolone and azatioprin, with clinical improvement. Azatioprin was stopped in 2012 and prednisolone in 2013. The patient was not compliant to the regular follow up at the pulmonology clinic and she was later re-evaluated in 2016. DLCO had further decreased (31%) and she maintained mediastinal adenopathies, coalescent micronodules of the upper lobes, bronchiectasis and fibrosis. Prednisolone was started again (20 mg/day) and the patient was referred to the interstitial lung disease clinic. Case was discussed at the multidisciplinary meeting. The diagnosis previously considered was accepted and immunosuppression was maintained.

Cosmetic dermal fillers can be classified as resorbable fillers (such as collagen or hyaluronic acid) or permanent/nonreasorbable fillers (such as silicone).[3] Ideally they should be biocompatible and they should induce minimum foreign body reaction.[4]

Foreign body reaction occurs when large foreign bodies cannot be phagocytosed by macrophages triggering aggregation of macrophages into multinucleated giant cells and formation of granulomas. There are different types of foreign body granulomas with different clinical and histologic features (cystic granulomas, lipogranulomas and sclerosing granulomas) depending on the type of filler used. However mixed type granulomas can also occur. Cystic granulomas are composed of giant cells and macrophages and usually occur with the injection of hyaluronic acid or collagen. Lipogranulomas occur mainly with the injection of silicone, paraffin or polyacrylamide gels and they have variously sized vacuoles, macrophages, and giant cells. Finally sclerosing granulomas (appearing usually with the injection of polymethylmethacrylate microspheres or polylactic acid microspheres) are made of empty vacuoles with even sizes and shapes, and the spaces between the vacuoles are filled with multinucleated giant cells, macrophages, fibroblasts, and collagen fibers produced by fibroblasts.[3]

One of the most probable causes for non-infectious granulomatous lung disease, sarcoidosis, remains without a known cause. It is thought that sarcoidosis occurs when a patient with genetic susceptibility to the disease is exposed to a specific environmental antigen. According to Marcoval et al.,[5] the immune system's capacity of sarcoidosis patients to handle foreign matter is compromised and the presence of foreign bodies in the skin might provide the stimulus necessary to granuloma formation. However it is still uncertain if the presence of polarizable foreign material within sarcoidal granulomas is compatible with the diagnosis of sarcoidosis.[6,7]

The injection of a cosmetic dermal filler normally induces a weak granulomatous reaction which can be exacerbated by interferon and other immunostimulatory medications triggering systemic sarcoidosis.[6] Our patient, however, was not exposed to any of those medications.

In conclusion pulmonary involvement following skin granulomatous reaction to foreign bodies is not frequent[8] and pathophysiology is not totally understood. In our patient a larger