

Editorial

Selective Embolization of Thyroid Arteries (SETA). Is It Always A Safe Procedure?

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In the past 10 years, a new method has been used to treat certain types of thyroid diseases. It is Selective Embolization of two or more Thyroid Arteries (SETA), using endovascular technique, in order to determine the ischemic necrosis of part of the thyroid parenchyma, thus reducing the size of goiter and solving simultaneously any hyperfunctioning thyroid status. First Chinese Authors [1] and then Polish Authors [2-4] have grappled with this new method of therapy in general as hyperfunctioning goiters, but there are also experiences related to the neoplastic disease [5-8]. We too have wanted to try this new method but with a different indication. Indeed, we have applied the SETA on three patients who had a large cervico mediastinal goiter. Cervico mediastinal goiter is undoubtedly one of the main indications for thyroid surgery because of compressive phenomena, gradually ingavescent, exercised on the mediastinal structures, especially if associated with hyperfunctioning disease resistant to medical therapy. The treatment of choice has always been the total thyroidectomy performed by a standard cervical approach or adding a thoracic transternal access (split sternotomy or median sternotomy) in cases where the size of the mediastinal goiter precludes the excision only via the cervical way and to dominate any mediastinal haemorrhage. The only alternative to surgery is radioiodine therapy, procedures that not all patients accept, is sometimes infeasible given the high dose of radioactive iodine needed to ablate such voluminous masses, and when applicable carries a high incidence of recurrence.

In our patients the mediastinal mass of goiter exceeded the horizontal plane passing through the aortic arch and then made them at high risk of having a median sternotomy to allow excision of goiter. In addition, all patients had a thyroid hyperfunctioning disease hardly controllable with medical therapy; they were not consenting to solve their disease surgically, and/or presenting a high surgical cardiovascular and/or respiratory risk. All these factors have led us, with the informed consent of the patients, to try this alternative method. The results, which we have summarized in two publications [9,10], were very satisfactory, achieving, at six months from embolization, the 50% reduction in volume of the goiter and the restore of a normal thyroid function that allowed the suspension of medical therapy. No alteration was noted with respect to calcium

metabolism and the production of parathyroid hormone, as reported in other studies [11]. The only unwanted side effect was tenderness in the anterior region of the neck for the first few days after embolization and the signs and symptoms of a reactive "thyroiditis", however, easily controllable with a mild anti-inflammatory therapy.

On the basis of these satisfactory results obtained in the first three cases, we have undergone to SETA a fourth patient arrived to our observation with a large cervico mediastinal goiter compressing and shifting the trachea to the right and presented an aorto-tracheal development. A Chronic Obstructive Pulmonary Disease (COPD), a Chronic Atrial Fibrillation (CAF) with anticoagulant therapy, a chronic heart failure with left pleural effusion was present. We embolized, with the same procedure as in the previous cases, both inferior thyroid arteries, responsible for the largest flow to the mediastinal portion of goiter. The post embolization period presented the same symptoms complained by the first three patients, but in addition, the patient developed a complete paralysis of the right emilarynx with hoarseness for palsy of the right true vocal cord and swallowing incoordination which led to a severe pneumonia aspiration, treated in inpatient settings with antibiotic therapy. This sequence of complications has also found its resolution at six months from embolization, with the recovery of laryngeal motility. The achievement of the objectives we had set was reached, however, and that is the significant decrease in the volume of mediastinal goiter and the resolution of the thyroid hyperfunctioning disease.

From this experience, we want to draw some general considerations. The treatment of choice of voluminous cervico mediastinal goiters is, and must remain, the surgery. We do not agree in treating patients with SETA indiscriminately as an alternative to surgery, especially if the indication is hyperfunction. In particular, for Graves' disease, it is an autoimmune disease, we believe that the removal of all thyroid tissue is necessary to eliminate any type of antigenic stimulus. The use of SETA should affect only a small group of patients who will not or cannot undergo surgery, especially if it involves a sternotomy access and symptoms related to the mediastinal size of goiter and/or a state of hyperfunction hardly controllable with medical therapy, however, require some type of treatment. It is therefore an extremely narrow niche of patients in whom however, must be performed a careful study of pre-embolization arteriography, in order to identify any vascular anomalies and to better define which and how many arterial pillars should be embolized. The procedure also should always be performed in centers with extensive experience in endovascular interventional radiology. Embolization does not preclude a subsequent surgery rather than total thyroidectomy in patients who have no contraindications of cardiac and/or respiratory nature, can make it possible excision using only the cervical way (as was the case in one of our first three patients). The embolization procedure has the advantage that it can be repeated, as shown by our previous works and presents generally few side effects, controllable

with common oral anti-inflammatory agents. Nevertheless, as in our last case, it can result in complications of some importance that, occurring in patients with an already precarious clinical balance, may be of some importance, even if transient.

Finally, the SETA is an innovative procedure, alternative and/or complementary to surgery, which plays an extremely limited indication and should not be considered totally free from risks and complications as reported by some Authors.

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