

Acute respiratory distress following fine needle aspiration of thyroid nodule: case report and review of the literature

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SUMMARY: Acute respiratory distress following fine needle aspiration of thyroid nodule: case report and review of the literature.

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Background. *Fine needle aspiration (FNA) is a widely used practice to assess thyroid lesions, with a low morbidity rate. Although neck hematomas following this procedure are quite common, only three cases of massive hemorrhage causing acute airways obstruction have been previously described.*

Case report. *We report the case of a 74 years old female with acute respiratory distress following ultrasound-guided FNA for a right paraisthmic thyroid nodule. The patient was admitted to the Emergency Room (ER) 6 hours after the procedure with a large neck hematoma compressing the cervical trachea and requiring surgical decompression. Patient underwent endotracheal intubation followed by isthmectomy and evacuation of the hematoma. Extubation was made 24 hours later in the Intensive Care Unit and the patient was discharged after 48 hours uneventfully.*

Conclusions. *Acute thyroid haemorrhage following FNA is a very rare but still possible evenience. Prompt intervention is mandatory for patients with rapidly evolving symptoms.*

RIASSUNTO: Distress respiratorio acuto dopo agoaspirato per nodulo tiroideo: caso clinico e revisione della letteratura.

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Introduzione. *L'esame citologico su agoaspirato (FNA) è una pratica diagnostica routinaria con basso tasso di morbilità per definire la natura dei noduli tiroidei. Sebbene gli ematomi cervicali dopo FNA siano piuttosto comuni, emorragie con dispnea acuta dovuta a compressione tracheale risultano estremamente rare, con soltanto tre casi riportati in letteratura.*

Caso clinico. *Paziente di 74 anni con dispnea acuta dopo agoaspirato ecoguidato su nodulo tiroideo in sede paraistmica destra. Sei ore dopo la procedura la donna venne visitata al Pronto Soccorso per dispnea ingravescente a causa di un voluminoso ematoma cervicale comprimente e dislocante la trachea. La paziente è stata intubata in Pronto Soccorso e sottoposta ad istmectomia (comprendente il nodulo biopsiato) e toilette chirurgica del collo. Dopo l'intervento è stata trasferita presso l'Unità di Terapia Intensiva, estubata 12 ore dopo e dimessa a 48 ore dal ricovero senza complicanze.*

Conclusione. *L'emorragia tiroidea dopo agoaspirato rappresenta una complicanza estremamente rara seppur possibile. L'intervento chirurgico urgente appare indispensabile nei pazienti in cui sia presente un ematoma di grosse dimensioni sintomatico.*

KEY WORDS: Thyroid - Fine needle aspiration- Airways obstruction.
Tiroide - Agoaspirato - Ostruzione vie aeree.

Background

Fine needle aspiration (FNA) of thyroid lesions is a common technique widely used to assess the nature and behaviour of thyroid nodules (1). FNA is the gold standard procedure for differential diagnosis, although is limited in case of follicular lesions or inadequate samples

(1). Except for mild neck discomfort, complications related to this techniques are unlikely to develop; massive neck hematomas after FNA are a rare event and only three cases have been reported in the current literature.

We describe the case of a patient whom developed an acute respiratory distress due to a large cervical hematoma after thyroid FNA.

Case report

A 74-year-old woman was referred to the Emergency Room of our hospital because severe respiratory distress due to a large he-

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matoma developed after FNA for a 2 cm right isthmic thyroid nodule. Anamnestic recall of previous FNA on the same nodule underlined a small neck hematoma and hoarseness lasted for two weeks after the procedure. Cytology was not diagnostic (Thy 3) and the decision to repeat the procedure was made.

The patients had no relevant medical history (no known coagulation defects) and was currently under medication for hypertension (Olmesartan). The thyroid function tests were within normal limits, no coagulation defect diagnosed on a comprehensive blood examination, nor platelet deficit was present at the time of the procedure. FNA was made by means of a 24-gauge needle by an experienced endocrinologist with more than 1500 FNA done. During the procedure the patient presented some local pain associate to episodes of straining and cough. After 1 hour of observation the patient was discharged. After 5 more hours, she was admitted to the ER for neck swelling, hoarseness and initial respiratory distress.

In the ER she underwent neck CT scan which showed a large neck hematoma (10x8x7.5 cm - Figs. 1 and 2) compressing and deviating the cervical trachea, esophagus and the left vascular bundle. After the CT scan the respiratory function worsened and the patient underwent oro-tracheal intubation and prepared for surgical decompression.

At cervical exploration hemorrhagic suffusion of the muscles (both strap and sternocleidomastoid muscles) was noted, with a 100 ml of free blood clot evacuated. An inferior capsular lesion on the isthmic nodule was present with an associate active tearing within the nodule. The vessels anatomy showed an arteria ima supplying the nodule. The isthmectomy was performed and the specimen sent for pathological examination with final diagnosis of follicular adenoma.

After 16 hours in the Intensive Care Unit the patient was extubated with complete recovering of respiratory function. She was then discharged after further 48 hours uneventfully.

Conclusions

FNA of thyroid nodule is nowadays a routine pro-

cedure in the differential diagnosis of thyroid nodules, with a high sensitivity and specificity and low morbidity rate when performed by experts (1). Hematoma after FNA is the most frequent complication, but it's an almost always self-limiting situation well managed using ice and mild compression after the procedure (1-2). Large neck hematomas with associate respiratory distress described in literature usually refer to post-operative complications of thyroid or parathyroid surgery, accounting for a rate of 1% to 1.5% in the different experiences, with higher prevalences in intrathoracic goiter and hyperthyroidism (2). Less common causes of severe thyroid hemorrhage described in literature are spontaneous thyroid hematomas (reported mainly in patient under anticoagulant therapy and with pre-existing thyroid pathology) and blunt neck traumas (3).

According to the different authors in literature, thyroid bleeding would be due to a plentiful of abnormal vessels within the capsule of thyroid nodules with a groove of weak veins and frequent artero-venous shunts that may divert blood with high pressure to these fragile veins, causing extravasation of blood and subsequent thyroid hemorrhage. Almost always this events may cause just a small increase of the thyroid volume with self-limitation, but under certain circumstances, such as anticoagulation therapy and/or concomitant hypertension, a minor trauma or a FNA procedure would result in a massive uncontrolled bleeding causing upper airway respiratory obstruction (3-5).

Only three cases of neck hematoma following FNA have been reported. Hor and coll. described a case in a patient with end stage renal disease, congestive heart failure, chronic obstructive pulmonary diseases (COPD),



Fig. 1



Fig. 2

Fig. 1-2 - CT: large neck ematoma compressing and deviating trachea and esophagus.

stroke, thrombocytopenia and under 325 mg aspirin/daily at the time of the biopsy (5). FNA in such patient would carry a higher risk of hematoma. In the other two cases reported in literature not anticoagulant nor antiplatelet medications were reported and blood tests were unremarkable.

Thus, a full medical history and comprehensive blood tests are a mandatory measure to be taken in order to assess a hemorrhagic risk for a patient supposed to undergo a FNA. Nevertheless to avoid this rare but still possible evenience we recommend always mild neck com-

pression after a FNA with close evaluation of the patient (one hour at least) before discharging.

When a large neck hematoma develops, patient would be recovered and observed for subsequent medical or surgical therapy. Neck exploration is mandatory in case of respiratory distress or enlarging hematoma.

FNA is a common and safe technique useful for the differential diagnosis in patient with thyroid nodules, but attention must be carried by physicians after such procedure, always being aware of this rare but potentially fatal complication.

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