

Surgical Management of Bleeding from the Superior Thyroid Artery after Core Needle Biopsy

Jina Lee, Bong Kyun Kim, Woo Young Sun

Department of Surgery, Daejeon St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Daejeon, Korea

Thyroid core needle biopsy (CNB) is commonly used in diagnosis of thyroid neoplasia, and despite its low complication rate, the complications can be fatal. Here, we report on the surgical management of thyroid artery bleeding after core needle biopsy of a thyroid nodule. A 58-year-old woman who underwent core needle biopsy presented with neck bulging and pain that developed two hours after biopsy. A large hematoma surrounding her right superior thyroid artery was detected.

Key Words: Hematoma, Superior thyroid artery, Core needle biopsy, Complication

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Correspondence: **Woo Young Sun**
Department of Surgery, Daejeon St. Mary's
Hospital, College of Medicine, The Catholic
University of Korea, 64 Daeheung-ro,
Jung-gu, Daejeon 34943, Korea
Tel: +82-42-220-9268
Fax: +82-42-220-9565
E-mail: sun2729@naver.com

INTRODUCTION

Among the complications associated with thyroid needle biopsy, bleeding and large hematoma are very rare. In this case, a large hematoma with bleeding occurred after CNB. The patient underwent surgical exploration and we ligated the superior thyroid artery to control the bleeding. This is a very rare case of surgical management of a hematoma following thyroid CNB.

CASE REPORT

A 58-year-old woman with a 1.05 cm round nodule in the right mid-portion of the thyroid gland visited the outpatient clinic for biopsy. She had previously undergone two fine needle aspiration biopsy (FNAB) procedures, with benign results. However, the nodule in her right thyroid gland was slightly enlarged and showed blurred margins on ultrasonography; therefore, a CNB was planned.

CNB was performed with a 16G Semi-automatic Biopsy

Needle (TSK Stericut, TSK Laboratory, Soja, Japan). Immediately after biopsy, a pericapsular hematoma was found (Fig. 1). Two hours after biopsy, we noticed a swelling in her anterior neck and ultrasonography revealed an enlarged heterogeneous hypoechoic mass within the subplatysmal space (Fig. 2A). Color Doppler sonography

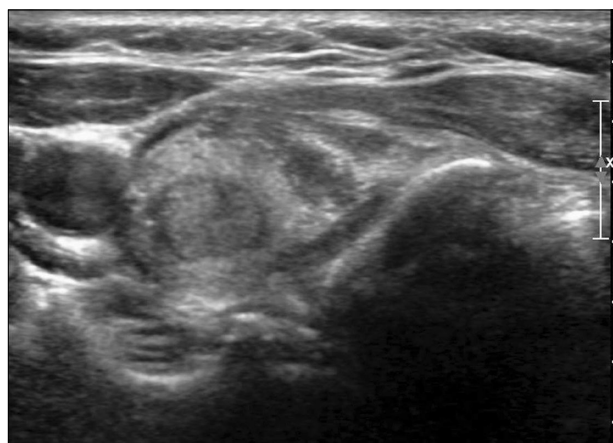


Fig. 1. Immediately after CNB, a pericapsular hematoma was found.

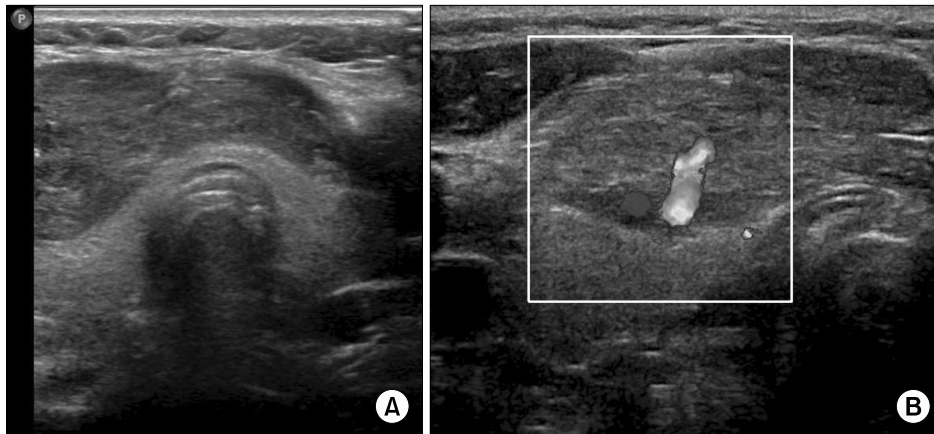


Fig. 2. Two hours after core needle biopsy. (A) A large subplatysmal hematoma anterior to the thyroid gland. (B) Color flow image showing the blood flow, indicating active bleeding.

showed blood flow in the anechoic portion, indicative of active bleeding (Fig. 2B). On examination, the patient had severe neck swelling and anterior neck tightness. She also complained of severe pain radiating from her neck to the retroauricular area, along with mild dyspnea. Thus, we decided to intervene surgically.

Surgical exploration revealed continuous bleeding from the right superior thyroid artery and a large hematoma in the subplatysmal space. We ligated the superior thyroid artery and controlled the bleeding, and her symptoms resolved following surgery.

The CNB pathology report revealed papillary carcinoma. She underwent total thyroidectomy and central lymph node dissection three weeks after the first operation. The final pathologic diagnosis was papillary thyroid carcinoma.

DISCUSSION

The aim of CNB is to obtain a large amount of thyroid tissue and it is a useful technique for the detection of thyroid malignancy. In fact, CNB can be more useful in detecting neoplasia in thyroid nodules previously diagnosed as nondiagnostic or with atypia of undetermined significance compared to repeated FNAB.⁽¹⁾ In this case, the patient had already undergone FNAB twice previously, with benign results, but the growth and characteristics of the nodule prompted us to perform CNB. The complication rate of CNB is as low as that of FNAB, about 1.5%~5.9%.^(1,2) Complications of CNB include hematoma,^(1,2) hemoptysis,⁽³⁾ infection,⁽⁴⁾ thyroid edema,^(1,2) and transient voice changes.⁽⁵⁾ According to Paja *et al.*,⁽⁶⁾ out

of approximately 3,517 cases of CNB, only one major complication occurred: a recurrent laryngeal nerve lesion direct puncture leading to permanent dysphonia. In about 56 cases of minor hematoma (about 1.59%), all were self-limited. In another report, complications were seen in 15 of 1,291 cases (1%); 13 of minor hematoma treated conservatively, 1 of skin incision site bleeding, and 1 of hemoptysis after biopsy that was self-limited.⁽⁷⁾

Bleeding after CNB is rare but it can be extremely dangerous, since continued bleeding after CNB can result in airway obstruction and death.⁽⁸⁾ A case report published in 2015 described the case of a patient who underwent FNAB and CNB, and died about three hours later. Autopsy revealed a massive hemorrhage in the muscles surrounding the thyroid and consequent airway obstruction. Such a massive hematoma may cause tracheal deviation and rapid compression of the upper airway. In that case, the source of bleeding was difficult to determine because the large hematoma involved the surrounding muscles. However, the patient died after only three hours, which is highly indicative of arterial bleeding.

Our patient underwent FNAB twice, with benign results. However, her right thyroid nodule had grown over the past year and showed blurred margins with heterogeneous echogenicity. We decided to perform a CNB, and the ultimate diagnosis was papillary carcinoma. Although the patient was subjected to additional surgery because of the bleeding and hematoma, CNB was certainly worthwhile as it confirmed the presence of papillary carcinoma.

Overall, CNB is a very safe and feasible method for thyroid nodule biopsy,⁽¹⁾ and most CNB complications are

minor and do not require surgery.⁽³⁾ The incidence of bleeding after thyroid CNB is very low, and it can usually be treated conservatively. However, as bleeding can have fatal consequences, it should be managed aggressively and surgical management should be considered.

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