Chemodectoma: Diagnosis by Fine Needle Aspiration Cytology

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Abstract
Chemodectomas or carotid body tumors (CBT) are tumors of neuroectodermal cells of autonomic nervous system belonging to family of paragangliomas. Clinically chemodectomas present as cervical swelling in the region of carotid artery. They are diagnosed on histopathology after removal. Here we present a case of carotid body tumor in a 35 year old lady that was diagnosed on fine needle aspiration cytology. She came with pulsatile lateral cervical swelling. We performed fine needle aspiration cytology using 23 and 29 gauge needles. No complication was noted. The aspirates revealed adequate material containing many polygonal glomus cells with abundant eosionophilic cytoplasm. To the best of our knowledge this is the first case in the literature in which the diagnosis of chemodectoma was solely made on fine needle aspiration cytology.

Keywords: Chemodectoma, Carotid body tumor, Paraganglioma, Fine Needle Aspiration Cytology

Case Presentation
A 35 year old lady came to the Pathology Department of Azad Jammu Kashmir Medical College Muzaffarabad (AJKMC) with a swelling in right cervical region. On examination there was 1.5 cm in diameter, firm, pulsatile swelling in the right lower cervical region. There was no organomegaly. The lesion had persisted for last 2 to 3 years. It was initially small but since last 5 months it gradually increased in size and became a bit painful. She also complained of on and off palpitations and headache.

There was no associated history of fever or weight loss. The patient was resident of periphery of Muzaffarabad that was on high altitude.

Procedure followed in fine needle aspiration cytology (FNAC): The FNAC was performed using 23 gauge 5 CC syringe needle & 29 gauge insulin syringe needles. The procedure was explained to the patient for her approval. No anesthetic drug was used. The area over the swelling was cleaned with pyodine solution. To obtain the greatest possible yield, the needle was moved back and forth within the lesion in one direction only to avoid hemorrhage.

No negative pressure was applied. As soon as one drop of material appeared in the hub of the needle, we withdrew the needle and light pressure was applied to the site. The slides intended for haematoxylin and eosin staining were fixed in absolute alcohol. The slides for Hemacolor were air dried.

Microscopic features: The smears were moderately cellular with hemorrhage in the background. The tumor cells were polygonal and arranged in several well defined nests in of Zellballen pattern. (Figure 1 & 2). The individual cell had moderately abundant cytoplasm (Figure 3)

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Figure 1: Glomus cells clusters (Hemacolor X 100)
be diagnosed and operated with low risk of morbidity and mortality. FNAC is an easy, cheap, quick, painless outpatient procedure that has multiple purposes with least complications. Although there is relative risk of hemorrhage if FNAC is performed on vascular structure like spleen, liver but if the procedure is performed with due care and avoiding undue manipulation of the needle then it becomes a safe, economical and quick method for early diagnosis. Our case report adds to the existing literature on cytologic diagnosis of CBT, further attesting to its safety and accuracy. Also, stating the importance of morphology which is still the cornerstone in the field of pathology for reaching final diagnosis.

Previously role of FNAC in the diagnosis of carotid body tumor was dreaded due to risk of severe bleeding; however with use of very fine needle like that of 5 cc 23 gauge needle and 29 gauge insulin syringe needle and staying away from movements in various directions and not exerting too much negative pressure, avoids hemorrhagic complications as well as the dilution of the sample with excessive blood.

**Conclusion**

Fine-needle aspiration cytology with due care is an important and safe diagnostic tool to diagnose carotid body tumor or chemodectoma.

**References**