INTRODUCTION

Glomus tumor is a distinctive neoplasm, the cells of which resemble the modified smooth muscle cells of the normal glomus body. The normal glomus body is a specialized form of arteriovenous anastomosis that serves in thermal regulation. It is located in the stratum reticularis of the dermis and is most frequently encountered in the subungal region, the lateral areas of the digits and the palm. The tumors are uncommon. We present a case of a 28 years female with a glomus tumor in the subungal region diagnosed by cytology.

Case History

A 28 years female presented with a gradually enlarging, painful swelling in the subungal region of the right middle finger, about 1 cm in diameter. Radiographs demonstrated a soft tissue lesion with no bony involvement. Fine needle aspiration cytology of the swelling was performed. Smears exhibited groups of cohesive, uniform, small, round to oval cells with scanty cytoplasm, indistinct cell borders and round nucleus with homogeneous chromatin against the background of red blood cells. Cytology was reported as “suggestive of glomus tumor”. Histopathological examination confirmed the diagnosis. Careful cytomorphological examination supported by appropriate clinical history should suggest the diagnosis of glomus tumor and help in preoperative diagnosis.

DISCUSSION

Glomus tumour is considered to be a hamartoma developing from the neuromyoarterial glomus body, which is a highly specialised arteriovenous anastomosis responsible for thermoregulation. The glomus body consists of an afferent arteriole, a tortuous arteriovenous anastomosis, a system of collecting veins and a neurovascular reticulum that regulates the flow of blood through the anastomosis. Glomus bodies are present in the reticular dermis throughout the body, but are highly concentrated in the digits, palms and soles.

Fig. 1. Round to oval cells with homogenous granular chromatin, scanty cytoplasm and indistinct cell borders against the background of red blood cells (MGG, x1000)
Reflecting a similar distribution, glomus tumours may affect any area of the body, but up to 75% occur in the hand and approximately 65% of these are in the fingertips, particularly in the subungual space (Grover et al., 2013). Glomus tumours are rare mesenchymal neoplastic lesions arising from glomus bodies, mostly benign tumours, and malignant variants have been rarely reported (Abu-Zaid et al., 2013). Diagnosis is often delayed because of the absence of specific symptoms and confirmation can only be made by histological study. Treatment is always surgical (Abbassi et al., 2012).

The first cytological description of glomus was given by Holck and Bredesen (1996) in an axillary mass misdiagnosed as ectopic breast tissue. Glomus tumours cause little diagnostic difficulty at histopathology, especially if the clinical presentation is typical. However, glomus tumour can also occur in the gastrointestinal tract, solid organs (liver, kidney) and the extremities (Matevossian et al., 2008). There is a recent report of a glomus tumour in the trachea presented by Norder et al. in 2012. Two examples of glomus tumours of the cervix that were incidental findings in patients with uterine leiomyomas are described by Albores-Saavendra et al. in 1999. Cytomorphological characterization of a classical case of glomus tumour can help in cytological diagnosis at uncommon sites. Cytomorphological features have been poorly defined. Reports have described cohesive clusters of uniform round cells with scanty cytoplasm, similar to the present case (Vinet-Leduc and Yazdi, 2001; Gu et al., 2002; Debol et al., 2003). Debol et al. (2003) have described a background with vascular channels and Vinette-Leduc and Yazdi (2001) have found a background of blood, bare nuclei and occasional inflammatory cells.

One of the difficulties at aspiration could be a hemorrhagic aspirate. Paucicellularity was reported by some authors (Gu et al., 2002; Debol et al., 2003). The authors suggest needing of the tumor without aspiration.

The differential diagnoses are many. Eccrine spiradenoma may present a difficult diagnostic problem. However, the localization of glomus cells around blood vessels and lack of acini formations are helpful features. Smears of eccrine spiradenoma show the presence of bland uniform cells in cohesive clusters and cribriform sheets with rosette-like structures surrounding the amorphous material. Cytopathologic distinction rests on identifying three types of cells – larger epithelial cells, myoepithelial cells and smaller lymphocytes. Glomus tumours have to be differentiated from other vascular lesions, such as hemangiopericytoma, paraganglioma and lobular hemangioma, depending on the site of origin of the tumor. In hemangiopericytoma, cellular smears show knobby clusters of oval to spindle-shaped cells with ill-defined, finely granular cytoplasm and bland nuclei, but the number of mitotic figures varies. In paragangliomas, cells may show moderate nuclear pleomorphism with fine red granules in the cytoplasm. Lobular capillary hemangioma show clusters of oval to spindle-shaped cells along with a cellular infiltrate of neutrophils and mononuclear cells. Because glomus tumour is derived from pericytes with special modification toward glomus cells, it is closely related to myopericytoma and myofibroma (Mukherjee et al., 2010).

Conclusion
Glomus tumor most of the time consists of rounded cells with scanty cytoplasm and crossing blood vessels. Occasionally the glomus tumor with spindle cell morphology might exhibit overlapping cytologic features. For accurate diagnoses and rule out from other differential diagnosis, proper clinical history and careful examination of cytological features, as round cells with scanty cytoplasm, indistinct borders, characteristic chromatin, and presence of few vessels, should be helpful. Thus the fine needle aspiration cytology is helpful in diagnosing of glomus tumor.

REFERENCES


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