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Infarction of parotid pleomorphic adenoma following fine needle aspiration biopsy

Umit Cobanoglu, Safak Ersöz, Fulya Adamhasan, Yavuz Özoran
Department of Pathology, Faculty of Medicine, Karadeniz Technical University, Trabzon, Turkey

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Fine needle aspiration has been used increasingly as a diagnostic procedure to evaluate neoplastic and non neoplastic lesions in various tissues. It is a safe, cost effective and well tolerated method with few complications. In a small number of cases fine nedle aspiration has been followed by varying degrees of necrosis in some organs. We report a case of 44 year-old female with a two years history of a parotid mass. The histological examination revealed a large central infarction of pleomorphic adenoma.

Keywords: pleomorphic adenoma, infarction, fine needle aspiration

Introduction

Fine needle aspiration (FNA) is a rapid, safe and well-tolerated method for the diagnosis of neoplastic and non neoplastic lesions in various tissues. A variety of complications, including bleeding, infection and inflammatory reactions, result from FNA. In the literature there are few reports associated with necrosis in pleomorphic adenoma of the parotid gland following FNA.[1–5] In this article, we report a case of pleomorphic adenoma with large infarction after FNA.

Case report

A 44–year-old female presented with a painless parotid mass. The FNA procedure was performed by pathologist. After three punctures and FNA, the slides were wet fixed and stained with Papanicolaou method. Cytological evaluation of FNA demonstrated spindle and round cells that formed small clusters. The cells were uniform in size and had round or oval, eccentric nuclei and well-defined cell borders with a background of myxoid matrix (Figure 1). The cytological findings were diagnostic for pleomorphic adenoma.

The mass was resected surgically. The duration between FNA and surgical resection was two weeks. The resected specimen consisted of a 3x2x2 cm mass with a large necrotic area. Histological examination revealed a well-circumscribed pleomorphic adenoma with a large central infarction. Residual neoplastic tissue was identified as a thin rim at the periphery of the tumor (Figure 2 and 3). We reexamined the cytological slides and no necrosis was noticed. This finding is supporting the idea that the necrosis has been developed after FNA.

Discussion

Pleomorphic adenoma is the most common neoplasm of the salivary glands. The majority of pleomorphic adenomas are located in the parotid gland (2).

FNA is a safe and well tolerated diagnostic tool for the diagnosis of palpable lesions in a variety of tissues. Although it is a relatively atraumatic procedure, a few clinically important complications, including bleeding, infection and inflammatory reactions, result from FNA. In a small number of cases, FNA has been followed by varying degrees of necrosis in some organs. The reported incidence ranges from 1.4 to 85%.[6,7]

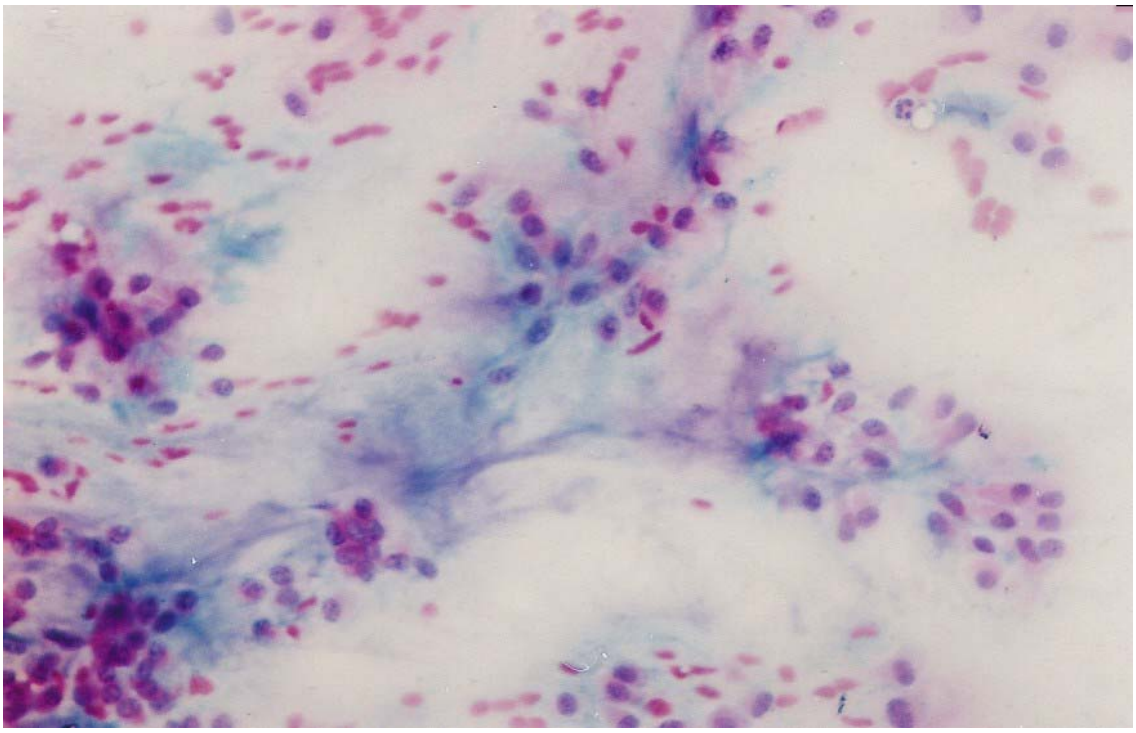

Figure 1: Epithelial and spindle shaped cells with myxoid background (Papanicolaou x100).

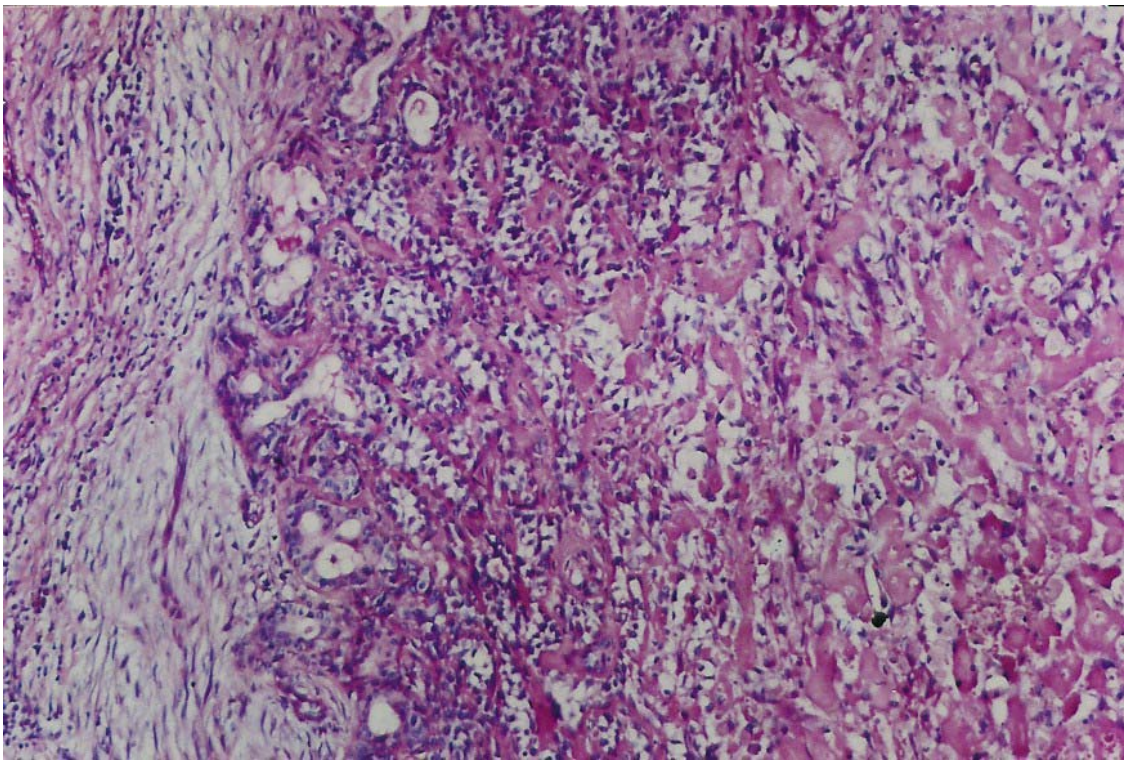

Figure 2. Neoplastic tissue as a thin rim at the periphery of the tumor (hematoxylin and eosin, x100)

Published cases of infarction after FNA have occured mostly in the thyroid gland including Hurthle cell neoplasms and papillary carcinoma. Infarction following FNA was also reported in fibroadenoma of breast, Warthin tumor of parotid gland, renal cell carcinoma and intramammary lymph node.[5, 8–11]

There are a few reports on cases similar to ours. Five cases associated with infarction occured in a

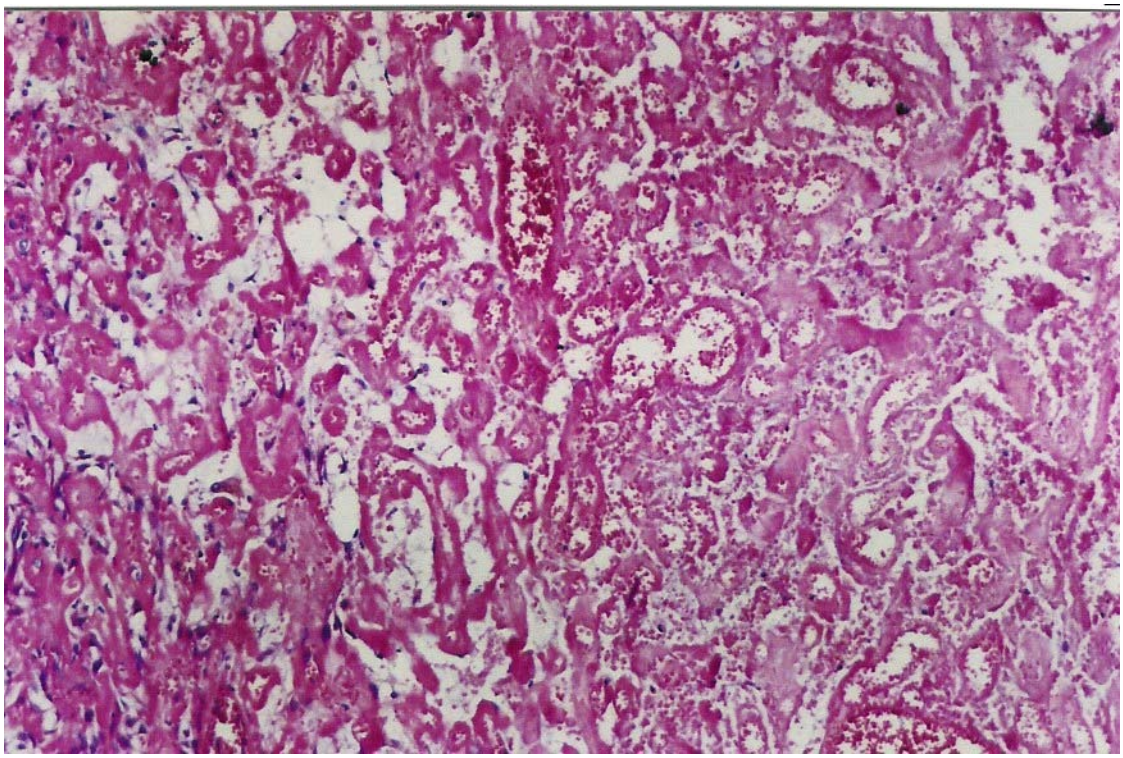

Figure 3: Large infarction (hematoxylin and eosin, x 200)

pleomorphic adenoma of the parotid gland following FNA, reported by Gottschalk-Sabag in 1995, Pinto in 1996, Li in 2000, Papuccuoglu in 2001 and Bayramoglu in 2001.[1–5]

Depending on the presence or absence of the diagnostic features, Batsakis et al classified the FNA-associated tissue effects into 3 categories: 1) micronecrosis and hemorrhage with retention of diagnostic features, 2) macronecrosis (infarction) with deletion of diagnostic features, 3) macronecrosis and micronecrosis with reactive proliferation of cells of the lesion and stromal cells.[12] In our case, although the type of the necrosis was a large infarction, we could make the diagnosis with the features observed as a thin rim at the periphery of the tumor.

Extensive necrosis should be alerting to evaluate the specimens more carefully, especially if it is associated with proliferation of atypical squamous and fibroblastic cells. In addition, necrosis should not be taken alone as a sign of malignant transformation. However, necrosis can occur spontaneously in pleomorphic adenoma.[13]

Interruption of the microvascular supply, traumatic venous thrombosis, vigorous aspiration and compromised vascular supply from extraction of large amounts of tissue were considered the responsible factors in tissue damage following FNA.[8,11,14]

As the subsequent effects of FNA on tissue histology are infrequent, we do not discourage the use of FNA in patients with palpable salivary gland lesions. The aim of this paper is to emphasize the importance of recognizing the necrosis induced by preoperative FNA.

References

1. Li S, Baloch ZW, Tomaszewski JE, LiVolsi VA. Worrisome histologic alterations following fine needle aspiration of benign parotid lesions. Arch Pathol Lab Med 2000; 124: 87-91.
2. Bayramoğlu H, Duzcan E, Akbulut M, Topuz B. Infarction after fine needle aspiration biopsy of the parotid gland. Acta Cytol 2001; 45: 1008-1010.
3. Pabuccuoğlu HU, Lebe B, Sarioğlu S, Lebe E. Infarction of pleomorphic adenoma; a rare complication of fine needle aspiration obscuring definitive diagnosis. Diagn Cytopathol 2001; 24: 301-303.
4. Gottschalk-Sabag S, Glick T. Necrosis of parotid pleomorphic adenoma following fine needle aspiration: A case report. Acta Cytol 1995; 39: 252-254.
5. Pinto RGW, Couto F, Mandreker S. Infarction after fine needle aspiration: a report of four cases. Acta Cytol 1996; 40: 739-741.
6. Ersoz C, Soylu L, Erkocak EU, Tetiker T, Gumurdulu D. Histologic alterations in the thyroid gland after fine needle aspiration. Diagn Cytopathol 1997; 16: 230-232.
7. Lee KC, Chan JKC, Ho LC. Histologic changes in the breast after fine needle aspiration. Am J Surg Pathol 1994; 18: 1039-1047.

8. Layfield LJ, Lones MA. Necrosis in thyroid nodules after fine needle aspiration biopsy: report of two cases. Acta Cytol 1991; 35: 427-430.
9. Malatskey A, Fields S, Shapiro A. Complete hemorrhagic necrosis of renal adenocarcinoma following percutaneous biopsy. Urology 1989; 2: 125-126.
10. Davies JD, Webb AJ. Segmental lymph node infarction after fine needle aspiration. J Clin Pathol 1982; 35: 855-857.
11. Kern SB. Necrosis of a Warthin's tumor following fine needle aspiration. Acta Cytol 1988; 32:207-208.
12. Batsakis JG, Sneige N, El-Naggar AK. Fine needle aspiration of salivary glands: its utility and tissue effects. Ann Otol Rhinol Laryngol 1992; 101: 185-188.
13. Layfield LJ, Reznicek M, Lowe M, Bottles K. Spontaneous infarction of a parotid gland pleomorphic adenoma. Acta Cytol 1992; 36: 381-386.
14. Us- Krasovec M, Golouh R, Auesperg M, Pogacnic A. Tissue damage after fine needle aspiration biopsy. Acta Cytol 1992; 36: 456-457.