Kulak Burun Bogaz Ihtis Derg 2012;22(5):288-292 doi: 10.5606/kbbihtisas.2012.055

Case Report / Olgu Sunumu

Sclerosing polycystic adenosis of the parotid gland presenting with a Warthin tumor

Parotis bezinde Warthin tümörü ile birliktelik gösteren sklerozan polikistik adenozis

Çiğdem Tokyol, M.D.,[1] Fatma Aktepe, M.D.,[1] Güler Şenyıldız Hastürk, M.D.,[1]
Hüseyin Yıldız, M.D.,[2] Murat Cem Miman, M.D.[2]

[1]*Department of Pathology, Medical Faculty of Afyon Kocatepe University, Afyonkarahisar, Turkey;*
[2]*Department of Otolaryngology, Medical Faculty of Afyon Kocatepe University, Afyonkarahisar, Turkey*

Sclerosing polycystic adenosis (SPA) frequently presents as an isolated process, however it may involve adjacent benign salivary gland neoplasia. In this article, we present a 77-year-old female case with a 10-year history of a slow-growing mass of the left parotid gland of SPA presenting with a Warthin tumor. The patient underwent left superficial parotidectomy. The histopathological examination revealed SPA and multifocal Warthin tumor.

Key Words: Cytology; histopathology; sclerosing polycystic adenosis; Warthin tumor.

Sklerozan polikistik adenozis (SPA) sıklıkla izole bir hastalık olarak görülmekle birlikte, benign tükürük bezi neoplazileri komşuluğunda da izlenebilmektedir. Bu makalede, sol parotis bezinde 10 yıldır yavaş büyüyen kitle öyküsü olan ve Warthin tümörü ile birliktelik gösteren 77 yaşında bir kadın hastada SPA olgusu sunuldu. Hastaya sol süperfisyel parotidektomi yapıldı. Histopatolojik inceleme sonucunda SPA ve multifokal Warthin tümörü saptandı.

Anahtar Sözcükler: Sitoloji; histopatoloji; sklerozan polikistik adenozis; Warthin tümörü.

Warthin tumor is the second most common tumor of the salivary glands. It is almost exclusively restricted to the parotid glands and the periparotid lymph nodes. Warthin tumor is sometimes seen in association with other benign salivary gland tumors, particularly pleomorphic adenoma.[1] Sclerosing polycystic adenosis (SPA) is a rare lesion of uncertain nature with a striking morphological resemblance to sclerosing adenosis and fibrocystic changes of the breast.[2,3] In this report, we present a case of sclerosing polycystic adenosis in association with Warthin tumor.

CASE REPORT

A 77-year-old female presented with a 10-year history of a slow-growing mass of the left parotid gland. She described a two-week onset of pain. Computed tomography scan with contrast showed a 2.5x2x1.5 cm well-circumscribed cystic parotid mass in the left superficial lobe. Fine-needle

Received / *Geliş tarihi:* January 11, 2012 Accepted / *Kabul tarihi:* March 24, 2012

Correspondence / İletişim adresi: Çiğdem Tokyol, M.D. Afyon Kocatepe Üniversitesi Tıp Fakültesi Patoloji Anabilim Dalı, 03200 Afyonkarahisar, Turkey.
Tel: +90 272 - 246 33 04 Fax *(Faks):* +90 272 - 246 33 00 e-mail *(e-posta):* ctokyol@yahoo.com

Presented at the 36th European Congress of Cytology, September 22-25, 2011, İstanbul, Turkey (Bu çalışma 36. Avrupa Sitoloji Kongresi'nde sunulmuştur, 22-25 Eylül 2011, İstanbul, Türkiye).

aspiration cytology (FNAC) specimen yielded scant material. The smears showed foamy macrophages and few neutrophils in a dirty necrotic background. Occasional degenerate cells were also seen (Figure 1). Although the findings were suggestive of a cystic lesion, they were non-diagnostic.

The patient underwent a left superficial parotidectomy. The cut surface of the surgical specimen revealed a 0.8 cm cystic formation. Microscopically, the cystic formation was a dilated ductus. It was surrounded by a sclerotic stroma. There was proliferation of acinar structures in the stroma with focal lymphocytic infiltration (Figure 2). In some acinar structures, there was intraluminal epithelial proliferation, forming cribriform structures (Figure 3). In the salivary gland, there were multifocal proliferations of oncocytic cells, some of which were surrounded by lymphoid tissue (Figure 4). The histopathological diagnosis was sclerosing polycystic adenosis and multifocal Warthin tumor.

At one-year follow-up, the patient did not report symptoms related to the parotid gland and no evidence of recurrence has been noted.

DISCUSSION

Warthin tumor accounts for about 15% of all epithelial tumors of the parotid gland.[4] The mean age at diagnosis is 62 years.[5] The relative sex incidence has changed during the last half-century: In 1953 the male to female ratio was 10:1,[6] whereas in 1996 it was 1.2:1,[5] and in 1992 it was equal.[7] The increased numbers of female smokers during the second half of the 20th century closely parallels the increase in Warthin tumor in women, and largely explains the change in sex incidence during this period.[8,9]

Warthin tumor is clinically multicentric in 12-20% of patients and is bilateral in 5-14%.[10,11] In addition, serial sectioning revealed additional sub-clinical lesions in 50% of cases.[12] There were multiple microscopic foci of tumor in our case.

Although various theories have been put forward to explain the development of Warthin tumor, only two have ultimately remained. The first is the hypothesis of heterotopia; the second is the theory that this tumor is an adenoma with concomitant lymphocytic infiltration. According to the latter theory, when they are small and have a short history, Warthin tumors consist mainly of epithelial components, whereas when they are large they show a lymphoid stroma in addition to their epithelial component. This theory was disproved by studies that showed the epithelial tumor components, like the lymphocytic infiltrations, are polyclonal. If, however, neoplasia is defined as a monoclonal process, this kind of tumor cannot be considered to be a true neoplasm. Because of the arguments against a true neoplastic origin of this tumor, a hypothesis combining immunological interactions between tumor cells and lymphocytic infiltrations with heterotopia may be favored.[4] There was multifocal proliferation of oncocytic cells, some of which were naked and some of which were surrounded by lymphoid tissue in our case. Our findings support the last hypothesis.

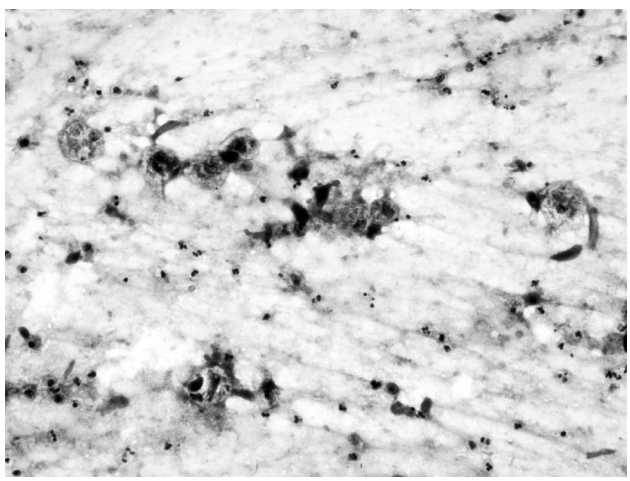

Figure 1. *Foamy macrophages, few neutrophils and occasional degenerate cells in a dirty necrotic background (MGG x 200).*

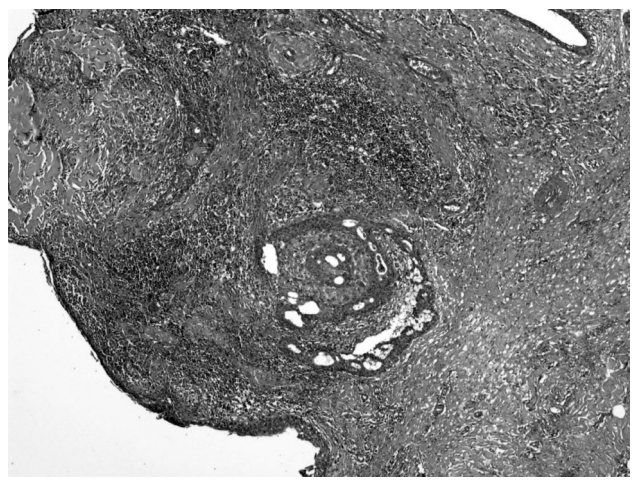

Figure 2. *Dilated cystic ductus surrounded by a sclerotic stroma which contained proliferated acinar structures and lymphocytic infiltration (H-E x 40).*

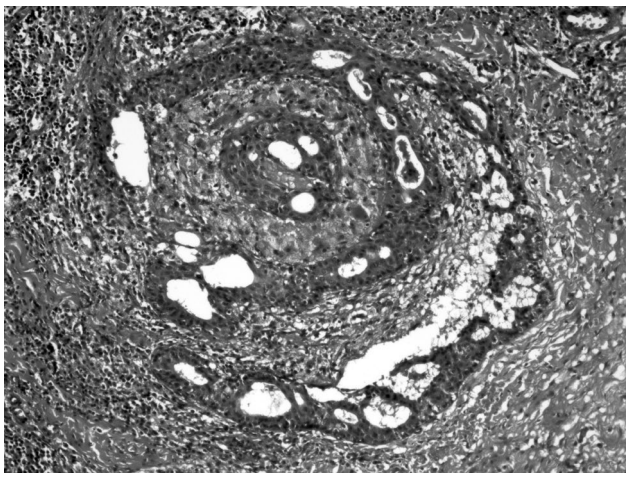

Figure 3. *Acinar structures with intraluminal epithelial proliferation, forming cribriform structures (H-E x 100).*

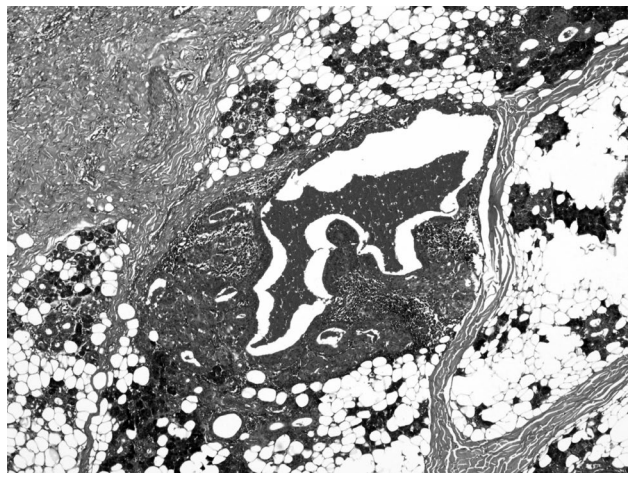

Figure 4. *Proliferation of oncocytic cells surrounded by lymphoid tissue adjacent to sclerotic area (H-E x 40).*

Sclerosing polycystic adenosis is a newly reported, extremely uncommon, pseudoneoplastic, reactive, inflammatory process of the major and minor salivary glands. Since the original reported cases from the Armed Forces Institute of Pathology there have been 47 cases of SPA in the literature.[3,13-26] While SPA frequently presents as an isolated process, it has also been reported as an incidental finding approximating an adjacent area of benign salivary gland neoplasia. Gnepp et al.[17] reported 16 cases of sclerosing polycystic adenosis. One patient also had a subjacent combined sebaceous lymphadenoma and Warthin tumor. Two patients had incidental lesions: one was associated with a recurrent benign mixed tumor and the other with an oncocytoma. The latter patient also had a benign mixed tumor in the adjacent submandibular gland. Our case was associated with multifocal Warthin tumor.

Most cases occurred within the major salivary glands, predominantly in the parotid gland. Occasional cases have been reported within the submandibular gland and minor salivary glands. The characteristic histopathological features of SPA, as described by Smith et al.[13] include lobular architecture, cystic ducts with frequent apocrine and sebaceous differentiation, large acinar cells with eosinophilic intracytoplasmic granules, intraductal epithelial hyperplasia, and dense fibrotic stroma within which these elements are embedded.

The cytological features of SPA have not been well characterized and hence, cytological diagnosis still remains problematic. The obtained material may be scant or abundant. Aspirates from the cystically dilated ducts are poor in cells and mimic other cystic diseases of salivary glands, both non-neoplastic and neoplastic. Retention cysts usually associated with sialolithiasis yield mucus, macrophages, and few aggregates of epithelial cells. Warthin tumor, when cystic, may also give paucicellular smears consisting of flakes of homogeneous and granular debris and this may be difficult to differentiate from SPA. Other tumors of the salivary gland, including acinic cell carcinoma, adenoid cystic carcinoma, mucoepidermoid carcinoma, cystadenoma and cystadenocarcinoma may also be cystic and be confused with SPA in aspiration cytology. In such cases, aspirations from solid areas of the tumor and/or excision with histopathological confirmation are two options to reach an accurate diagnosis.[22] Fine-needle aspiration cytology findings in our case were suggestive of a cystic lesion, but they were non-diagnostic.

When the obtained material is abundant and cellular, the spectrum of pathological lesions in the differential diagnosis include pleomorphic adenoma, sebaceous adenoma, Warthin tumor and low-grade mucoepidermoid carcinoma.[20,23,25] The cytological diagnosis of SPA should be entertained whenever a polymorphous picture is found on fine-needle aspiration samples comprising oncocytic/apocrine changes, sebaceous cells, cystic background, and epithelial hyperplasia with low-grade cytological atypia.[25]

The pathogenesis of SPA is uncertain. It is included in tumor-like conditions in the fourth

series of US Armed Forces Institute of Pathology (AFIP) Atlas of Tumor Pathology.[27] Determination of progesterone and estrogen receptor staining in cases of SPA supports the link between SPA and lesions described in the mammary gland and suggests that hormonal influences may underlie its pathogenesis.[15] Epithelial atypia has been frequently cited with SPA, particularly in association with the proliferating ductal component of SPA; however, the significance of this finding is unclear.[17,15,20] Some authors refer to the cellular pleomorphism noted in the ductal epithelium as dysplasia or carcinoma in situ.[15,25,26] Further, a study suggested that at least some cases of SPA may represent a clonal tumor process.[18] Nevertheless, to date no evidence of infiltration and metastasis have been documented. Recurrence is probably caused by the multifocal nature of the disease. Although no invasive carcinoma has been described in these lesions so far, it is advisable to keep these patients under long-term follow-up.[20]

In conclusion, SPA is a newly described rare lesion of the salivary gland. It is included in tumor-like conditions although its pathogenesis is uncertain. Fine-needle aspiration cytology findings are described in a wide spectrum. They may be suggestive of a cystic lesion when paucicellular, or a low-grade malignancy when hypercellular. Awareness of this rare entity is necessary for its diagnosis.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Simpson RHW, Eveson JW. Warthin tumour. In: Barnes L, Eveson JW, Reichart P, Sidransky D, editors. World health organization classification of tumors: Pathology and genetics of tumors of head and neck. Lyon: IARC Press; 2005. p. 263-5.
2. Cheuk W, Chan JK. Advances in salivary gland pathology. Histopathology 2007;51:1-20.
3. Noonan VL, Kalmar JR, Allen CM, Gallagher GT, Kabani S. Sclerosing polycystic adenosis of minor salivary glands: report of three cases and review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;104:516-20.
4. Teymoortash A. Head and neck: Salivary gland: Warthin's tumors. Atlas genet cytogenet oncol haematol. Available from: http://AtlasGeneticsOncology.org/Tumors/WarthinsTumID5424.html.
5. Ellis GL, Auclair PL. Tumours of the salivary glands. 3rd ed. Fascicle 11. Washington: Armed Forces Institute of Pathology; 1996.
6. Foote FW Jr, Frazell EL. Tumors of the major salivary glands. Cancer 1953;6:1065-133.
7. Monk JS Jr, Church JS. Warthin's tumor. A high incidence and no sex predominance in central Pennsylvania. Arch Otolaryngol Head Neck Surg 1992;118:477-8.
8. Lamelas J, Terry JH Jr, Alfonso AE. Warthin's tumor: multicentricity and increasing incidence in women. Am J Surg 1987;154:347-51.
9. Yoo GH, Eisele DW, Askin FB, Driben JS, Johns ME. Warthin's tumor: a 40-year experience at The Johns Hopkins Hospital. Laryngoscope 1994;104:799-803.
10. Gnepp DR. Diagnostic surgical pathology of the head and neck. Philadelphia: W.B. Saunders; 2001.
11. Maiorano E, Lo Muzio L, Favia G, Piattelli A. Warthin's tumour: a study of 78 cases with emphasis on bilaterality, multifocality and association with other malignancies. Oral Oncol 2002;38:35-40.
12. Lam KH, Ho HC, Ho CM, Wei WI. Multifocal nature of adenolymphoma of the parotid. Br J Surg 1994;81:1612-4.
13. Smith BC, Ellis GL, Slater LJ, Foss RD. Sclerosing polycystic adenosis of major salivary glands. A clinicopathologic analysis of nine cases. Am J Surg Pathol 1996;20:161-70.
14. Batsakis JG. Sclerosing polycystic adenosis: newly recognized salivary gland lesion-a form of chronic sialadenitis? Adv Anat Pathol 1996;3:298-304.
15. Skálová A, Michal M, Simpson RH, Stárek I, Prádná J, Pfaltz M. Sclerosing polycystic adenosis of parotid gland with dysplasia and ductal carcinoma in situ. Report of three cases with immunohistochemical and ultrastructural examination. Virchows Arch 2002;440:29-35.
16. Imamura Y, Morishita T, Kawakami M, Tsuda G, Fukuda M. Sclerosing polycystic adenosis of the left parotid gland: report of a case with fine needle aspiration cytology. Acta Cytol 2004;48:569-73.
17. Gnepp DR, Wang LJ, Brandwein-Gensler M, Slootweg P, Gill M, Hille J. Sclerosing polycystic adenosis of the salivary gland: a report of 16 cases. Am J Surg Pathol 2006;30:154-64.
18. Skálová A, Gnepp DR, Simpson RH, Lewis JE, Janssen D, Sima R, et al. Clonal nature of sclerosing polycystic adenosis of salivary glands demonstrated by using the polymorphism of the human androgen receptor (HUMARA) locus as a marker. Am J Surg Pathol 2006;30:939-44.
19. Kloppenborg RP, Sepmeijer JW, Sie-Go DM, de Ru JA, Slootweg PJ. Sclerosing polycystic adenosis: a case report. B-ENT 2006;2:189-92.
20. Bharadwaj G, Nawroz I, O'Regan B. Sclerosing polycystic adenosis of the parotid gland. Br J Oral Maxillofac Surg 2007;45:74-6.
21. Etit D, Pilch BZ, Osgood R, Faquin WC. Fine-needle aspiration biopsy findings in sclerosing polycystic adenosis of the parotid gland. Diagn Cytopathol 2007;35:444-7.

22. Gupta R, Jain R, Singh S, Gupta K, Kudesia M. Sclerosing polycystic adenosis of parotid gland: a cytological diagnostic dilemma. Cytopathology 2009;20:130-2.
23. Perottino F, Barnoud R, Ambrun A, Poupart M, Pignat JC, Merrot O. Sclerosing polycystic adenosis of the parotid gland: diagnosis and management. Eur Ann Otorhinolaryngol Head Neck Dis 2010;127:20-2.
24. Gurgel CA, Freitas VS, Ramos EA, Santos JN. Sclerosing Polycystic Adenosis of the minor salivary gland: case report. Braz J Otorhinolaryngol 2010;76:272.
25. Fulciniti F, Losito NS, Ionna F, Longo F, Aversa C, Botti G, et al. Sclerosing polycystic adenosis of the parotid gland: report of one case diagnosed by fine-needle cytology with in situ malignant transformation. Diagn Cytopathol 2010;38:368-73.
26. Petersson F, Tan PH, Hwang JS. Sclerosing polycystic adenosis of the parotid gland: report of a bifocal, paucicystic variant with ductal carcinoma in situ and pronounced stromal distortion mimicking invasive carcinoma. Head Neck Pathol 2011;5:188-92.
27. Ellis GL, Auclair PL. Tumors of the salivary glands. AFIP atlas of tumor pathology. 4th ed. Fascicle 9. Silver Spring MD: ARP Press; 2008.