

Cytologic Features of Papillary-Cystic Variant of Acinic-Cell Adenocarcinoma: A Case Report

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A case of papillary-cystic variant of acinic-cell adenocarcinoma is described. The cytologic findings differed significantly from the classic features of this tumor with smears showing large monolayer sheets and small papillary groups, no acinic structures or naked tumor cell nuclei, sparse cell dissociation and many vacuolated cells. Diagn Cytopathol 1994;10:30–32.

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Key Words: FNA; Acinic cell adenocarcinoma; Papillary-cystic; Cytology; Histomorphology

Acinic-cell adenocarcinoma is found in 2.5–4 percent of parotid tumors.^{1,2,3,4} Four histomorphologic tissue patterns have been described⁵ that is, solid, microcystic, papillary-cystic, and follicular; with the papillary-cystic variant making up 25% of the cases. Fine-needle aspiration (FNA) is a simple and reliable method of diagnosing both tumors and non-neoplastic lesions in salivary glands. Sensitivity and specificity of 89–93% and 94–99% have been reported in recent series.^{6,7} The cytologic findings in smears from acinic-cell adenocarcinomas is well known.^{8,9} The papillary-cystic variant shows some different features and is described in this case report.

Clinical History

A 40-yr-old male who incidentally, while shaving, noticed a swelling of the left parotid gland 4 mo prior to clinical examination. The tumor had been asymptomatic and had not increased in size. On examination the lesion was circumscribed, movable and measured 3 × 3 cm. CT showed a cystic tumor of the left parotid gland. As-

piration revealed 4–5 ml of brown fluid. The residual lesion was aspirated. Cytologic diagnosis was: “epithelial lesion with slight pleomorphism: mucoepidermoid carcinoma?”. A total parotidectomy was performed and histology showed an acinic-cell adenocarcinoma, cystic-papillary variant.

Cytologic Findings

The cystic material of the first aspiration contained numerous macrophages, a granular proteinaceous material, and scattered degenerated epithelial groups. Aspirate from the residual lesion showed epithelial cells in numerous large monolayer sheets as well as smaller groups, some of which were papillary in configuration (Fig. C-1). Granular material was seen in the background, but no necrotic debris or mucin. There were scattered macrophages. The epithelial cells had medium amount of clear or eosinophilic cytoplasm (Fig. C-2), and a substantial number were vacuolated (Figs. C-3 and C-4). A minority showed dense grey/greyblue cytoplasm (in PAP and Giemsa stain, respectively) resembling oxyphilic cells. (Fig. C-5) The vacuoles were of varying size and without stainable content. Nuclei were round or roundoval with moderate variation in size and shape. Nuclear chromatin was pale, finely granulated, and a small to medium sized, conspicuous nucleolus was seen in some cells (Fig. C-2).

Histologic Findings

Histology showed a cystic tumor with one large and several small cysts situated in the deep lobe of the parotid gland. Projecting into the lumen were multiple papillary structures of varying size (Figs. C-6, C-7, and C-8). Morphologic features were consistent with a cystic-papillary variant of acinic-cell adenocarcinoma (diagnosed at the Armed Forces Institute of Pathology by consultation).

Received September 7, 1992. Accepted May 25, 1993.

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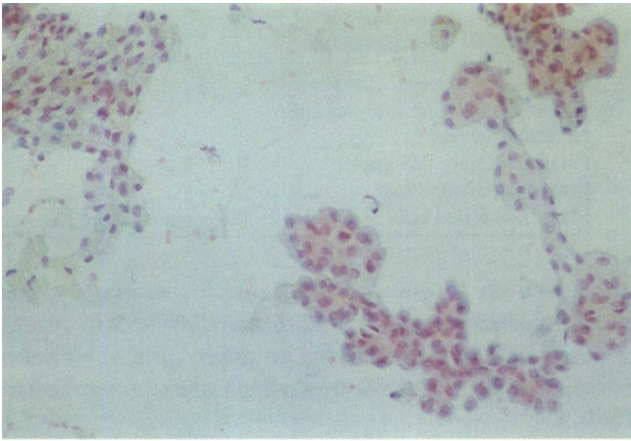


Fig. C-1

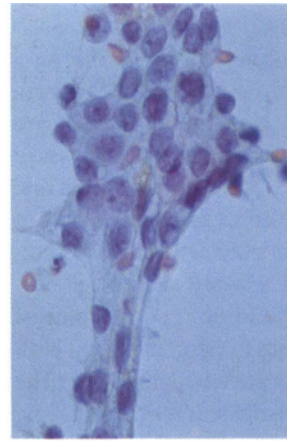


Fig. C-2

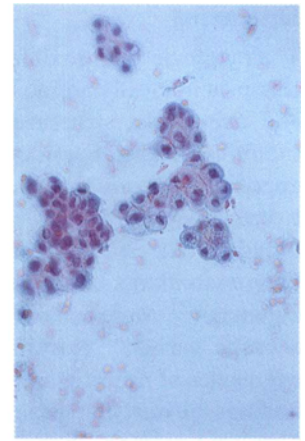


Fig. C-3

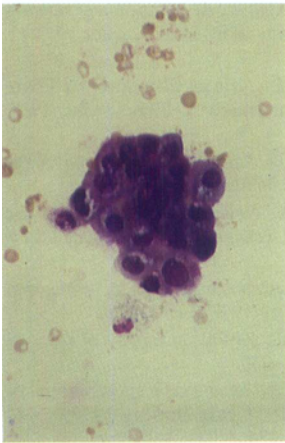


Fig. C-4

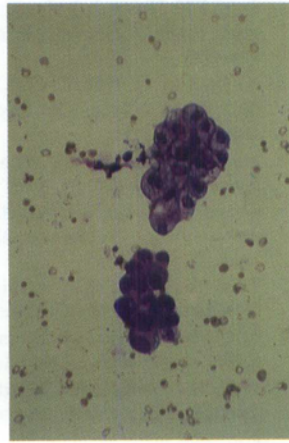


Fig. C-5

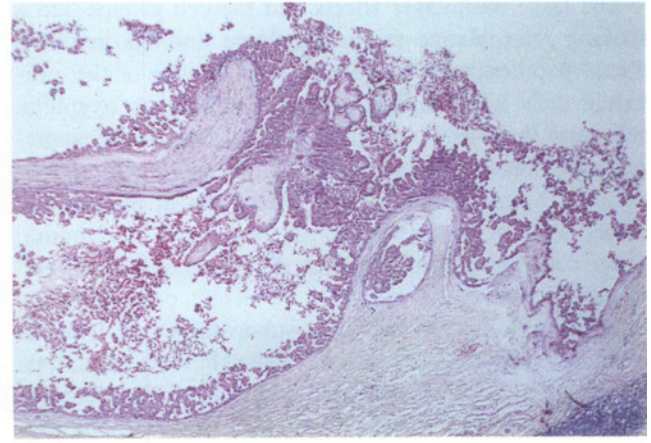


Fig. C-6

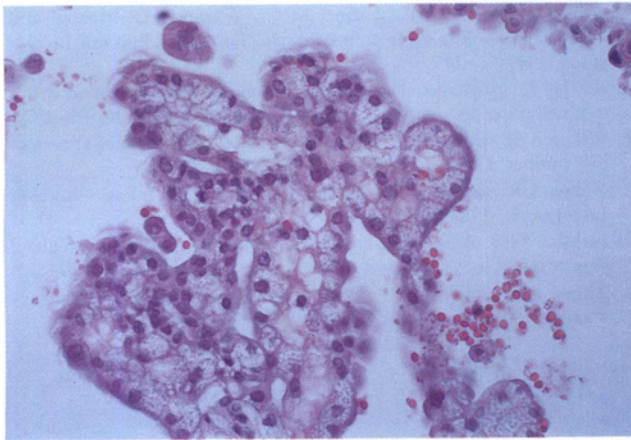


Fig. C-7

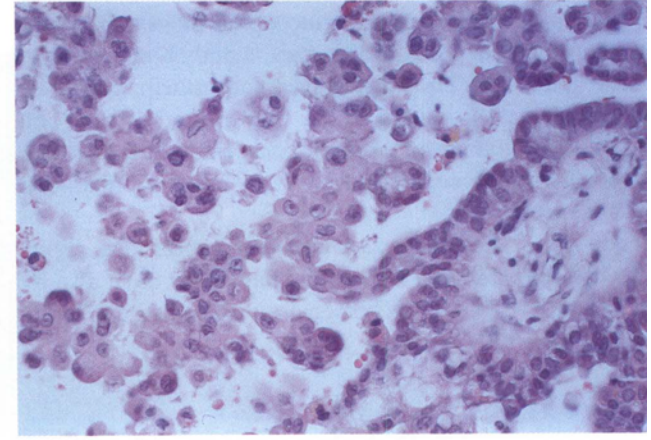


Fig. C-8

Figs. C-1–C-8. **Fig. C-1:** Overview of smear showing numerous large sheets and cell groups (PAP stain, $\times 63$). **Fig. C-2:** Acinic type cells with possible abortive acinic structure and cytoplasmic pigment (hemosiderin, special stain not shown; PAP stain, $\times 250$). **Fig. C-3:** Epithelial cells with varying cytoplasmic differentiation; vacuolated cells conspicuous (PAP stain, $\times 160$). **Fig. C-4 and C-5:** Cells with varying and mixed cytoplasmic differentiation (oxyphilic, vacuolated and mixed forms). Giemsa stained smears ($\times 250$ and $\times 160$, respectively). **Fig. C-6:** Overview of part of the cystic tumor with intracystic papillary projections and minor solid regions (H&E stain, $\times 160$). **Fig. C-7:** Papillary structure with cells showing extensive cytoplasmic vacuolization (H&E stain, $\times 160$). **Fig. C-8:** Mainly oxyphilic cell type (H&E stain, $\times 160$).

Discussion

The cytologic picture differed significantly from that of a classic acinic-cell carcinoma. Cell dissociation was sparse and acinus-like structures were missing, as were bare tumor cell nuclei. Papillary-like groups are well known to appear in aspirates from acinic-cell tumors, but this is due to cell adherence to their vascular cores and such were not found in our case. Laminated, calcific structures resembling psammoma bodies reported in cystic acinic-cell carcinomas,^{10,11} were not noticed. Qizilbash reports a case of a cystic variant¹² showing two cytologic pictures with aggregates of necrotic and degenerate cells, much like the findings in our first aspirate. Qizilbash's corresponding histologic pictures shows a clearly intracystic, papillary tumor resembling our case.

The large monolayer sheets and the cell groups had a striking resemblance to the cytologic findings in intraductal papillomas of the breast. The majority of the individual cells had the appearance of acinic or oxyphilic cells, and thus were consistent with a diagnosis of acinic-cell carcinoma. The large, often numerous, cytoplasmic vacuoles found in many cells, would not fit in with the classic cytologic description of acinic-cell carcinoma. These cells have, however, been described by Ellis et al.⁵ as one of five cell types seen in acinic cell adenocarcinomas, although mainly as a subordinate cell type. In Hanson's report of two cases,¹³ cells showing numerous cytoplasmic vacuoles were also mentioned. The vacuoles did not stain with either PAS (with and without diastase) or Alcian green on the smears and are possibly degenerative in nature.

In our cytologic report, mucoepidermoid carcinoma was considered a possible diagnosis, mainly because of the vacuolated cells. They did not contain mucin, however, and there was no mucin in the background either. The oxyphilic cells had some resemblance to the intermediate type cells in mucoepidermoid carcinoma, but squamous cells were not seen.

Because of the conspicuous papillary appearance, papillary cystadenoma and intraductal papilloma must also be considered.¹⁴ These are benign lesions, and the cellular

Table 1. Cytologic Features of Papillary-Cystic Variant of Acinic-Cell Adenocarcinoma

Large monolayer epithelial sheets
Numerous small papillary groups
No acinic structures
No naked tumor cell nuclei
Sparse cell dissociation
Many vacuolated cells in addition to the common cell types

pleomorphism in our case indicated a low grade carcinoma. In conclusion, we found the papillary-cystic variant of acinic-cell adenocarcinoma to differ from the classic description in several features which are summarized in Table 1.

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