Mucoepidermoid Carcinoma of the Liver

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ABSTRACT

Pianzola, Luis E., and Drut, Ricardo: Mucoepidermoid carcinoma of the liver. Amer. J. Clin. Path. 56: 758-761, 1971. This first case of mucoepidermoid carcinoma of the liver to be reported was discovered in a 44-year-old man with an 8-month history of fever, vomiting, weight loss (15 kg.), and pain in the right hypochondrium. A right hemihepatectomy disclosed a 15 cm. tumor located above the gallbladder bed. Histologically, the growth was composed of nests of epidermoid and mucus secreting cells, sometimes with cystic spaces in the center of the nests. Intercellular bridges and keratinization were present in the epidermoid parts of the tumor. The mucus-secreting cells were periodic acid-Schiff and Alcian blue positive. Necropsy revealed no remaining tumor or metastases in other organs. It is suggested that epidermoid elements may arise from the biliary ducts as they do from salivary ducts.

Malignant epithelial tumors of the liver can be grouped as follows: (1) hepatic cell carcinoma or hepatocarcinoma; (2) carcinoma of the bile ducts or cholangiocarcinoma; (3) cholangiohepatoma; and (4) hepatoblastoma or teratoid tumor of the liver in its two varieties: (a) the epithelial type or epithelial hepatoblastoma, and (b) the epithelial and mesenchymatous type or mixed hepatoblastoma. Routine findings in the latter are strands of more or less keratinized squamous cell elements with or without pearls, a histopathologic feature of these tumors. In 1898, Misick was the first to comment on squamous cell foci in a hepatic tumor, describing "cholesteatoma-like" bullae or pearls, which he considered to be of endodermal origin.

Even though the ectoderm does not form part of the liver, Ishak and Glunz believe that an ectodermal origin cannot be discarded, since tridermal teratomas in the liver have been described.

In cases reported since then, authors have confined their comments to descriptions of the epidermoid elements, without explaining how they came to be there. In 1958, Edmondson first described a case of epidermoid carcinoma of the liver, apparently arising in an epidermal cyst located within the liver. While studying the ultrastructure of hepatoblastomas, Ito and Johnson discovered cells with intracytoplasmic fibrils, 70 A in diameter, distributed in bundles near the nucleus, in one of their cases. The authors suggest they represent incomplete keratinization in a metaplastic process, considering that their size is similar to that of the tonofibrils. Ruebner and co-workers found intracytoplasmic fibrils in the canalicular cells of a cholangiocarcinoma.

These findings lead us to admit the occasional presence of epidermoid epithelial components in mixed as well as in simple hepatic tumors, an assumption supported by our own finding of a hitherto undescribed mucoepidermoid tumor of the liver.

Report of a Case

Clinical Findings. The patient, a 44-year-old man, was admitted to the General San Martin Institute of La Plata, Argentina, in October 1969. His illness had started 8 months before with a syndrome of fever,
Vomiting, weight loss of 15 kg., and pain in the right hypochondrium radiating from the lumbar region. Examination revealed a tender liver, extending four fingerbreadths below the costal margin.

**Laboratory Findings.** Erythrocyte count was 3,800,000 per cu. mm. Erythrocyte sedimentation rate was 120 mm. per hr. Direct bilirubin was 6 mg. per 100 ml.; indirect bilirubin was 4 mg. per 100 ml. Glutamic oxalacetic transaminase was 12 Karmen units; alkaline phosphatase, 13 King-Armstrong units. Roentgenographic examination disclosed elevation of the right hemidiaphragm.

A diagnosis of possible hydatid cyst was made and surgery decided upon. A right hemihepatectomy was performed, with removal of 65% of the liver. Death occurred on the 45th day of a complicated postoperative course.

**Pathologic Findings.** The surgical specimen consisted of the right hepatic lobe. It contained a tumor 15 by 10 by 10 cm. in diameter, situated above and anterior to the gallbladder bed, to which was adherent a portion of the major omentum. On section, the neoplasm was pinkish-white, 15 cm. in diameter, with some outlying nodules (Fig. 1).

Histologic examination showed cords and masses of squamous epithelial cells, with a tendency to concentric stratification. The middle layers showed a clear cytoplasm; the majority of the cells were vacuolated. Between them there were other dyskeratotic cells. In the center of the cell masses it was sometimes possible to see an amorphous or slightly fibrillar substance containing pyknotic nuclei. The vacuolated cells and the amorphous substance were periodic acid-Schiff, Alcian blue, periodic acid-Schiff performic, and Alcian blue performic positive (Figs. 2 and 5).8

Using Kreyberg’s method (combined staining of mucin and keratin) results were positive for the latter substance in the central material and in the cytoplasm of nu-
Fig. 2. Solid nests of epidermoid and mucin-producing cells characteristic of mucoepidermoid carcinoma. Hematoxylin and eosin. X 80.

Fig. 3 (upper right). Pyknotic nuclei and amorphous or slightly fibrillar material were sometimes found in the centers of the nests of cells (upper left and right center). Hematoxylin and eosin. X 80.

Fig. 4 (lower left). At higher magnification the two kinds of cells are clearly seen. Note some intercellular bridges and the beginning of a cyst formation through the necrosis of a cell. Hematoxylin and eosin. X 300.

Fig. 5 (lower right). Periodic acid-Schiff positive material in the clear cells and in central cysts. X 80.
Numerous cells. Sudan stains were negative. In some of the cell nests the central material accumulated in such a way that microcysts appeared. Higher magnification disclosed numerous “intercellular bridges” (Figs. 6 and 7). An intense stromal reaction, mainly fibrosclerotic, was observed with Mallory's trichromatic technic. In addition, with this method it was possible to differentiate the infiltrating epithelial masses from the nonneoplastic hepatic ducts. In many sections from different areas, the tumor maintained its identity. There were large areas of necrosis in the tumor and the surrounding hepatic parenchyma showed fatty changes. At postmortem examination there was active regeneration of liver cells and bile ducts near the zone of resection. There was also residual tumor in the liver, but in no other organ.

Discussion

This hepatic tumor was clearly a mucoepidermoid carcinoma of low to intermediate malignancy, since the periodic acid-Schiff and Alcian blue methods demonstrated the mucoid component, and Kreyberg's technic, the dyskeratotic cells and intercellular bridges, the epidermoid portion.

It is suggested that the histogenesis of this tumor is similar to the one which is accepted in salivary gland tumors, in other words, that it arises from the terminal ramifications of the bile canaliculi which have undergone a squamous metaplasia.

References