

Histological examination of the auricular cartilage and pseudocyst of the auricle

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Abstract

In our histological examination on 42 ears (auricles) which were taken from 18 fetus and three adults, the intra-cartilaginous fibrous tissue with blood vessels and lymphatics were found in 12 ears and interruption of the auricular cartilage in 22 ears. The intracartilaginous connective tissue with blood vessels and lymphatics were linked together with the connective tissue outside the auricular cartilage in other sections. These findings support the hypothesis of congenital embryonic dysplasia as the origin of the formation of pseudocyst of the auricle.

Introduction

Non-tender cystic swelling of the auricle in the anterior aspect of the auricle is a common disease in China and has been referred to as non-suppurative perichondritis, serous perichondritis or haematoma of the auricle in the textbooks. In 1846, Hartmann was the first to report that the cysts were intracartilaginous in nature. Engle (1966) confirmed the intracartilaginous collections of fluid and stated that the cysts developed from degeneration and liquefaction within the auricle cartilage based on his histological examination of the anterior wall of the cysts, suggesting the role of localized release of lysosomal enzymes. The cysts were called 'pseudocyst' by Engle (1966) because there were no endothelial cells clothing the inner surface of the cyst. Hansen (1967) and Santos *et al.*, (1974) thought that the complicated embryonic development of the auricle may be a contributory factor in cyst formation. With the folding of the six knob-like prominences in the complicated embryonic development of the auricle, it is quite possible to create the residual planes with potential space formations (Hansen, 1967; Santos *et al.*, 1974). Besides these, there are other hypothesis theories such as perichondritis (Liu *et al.*, 1986) and

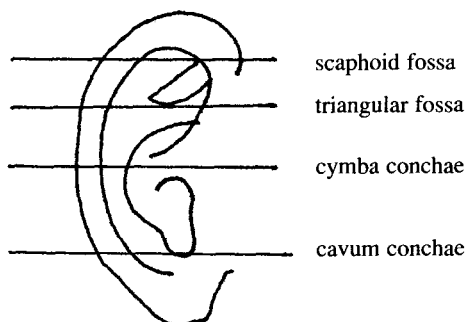


FIG. 1
Auricle was cut into four parts.

congenital embryonic dysplasia to explain the origin of pseudocyst of the auricle (Yun, 1986). Since 1988, we have examined 42 ears (18 cases of embryonic auricles and three cases of adult auricles).

Materials and method

Specimens (42 auricles) from 18 fetus of varying age and three adults who died suddenly were removed and immediately fixed in 10 per cent formalin. One week after removal, each auricle was cut into four parts (Fig. 1), embedded in paraffin and sections were prepared and stained with haematoxylin and eosin.

Findings

The findings were as follows: (1) in 12 out of 42 auricles, connective tissue with vessels and lymphatics were



FIG. 2
Connective tissue with vessels and lymphatics were completely enclosed with auricular cartilage (fetus).

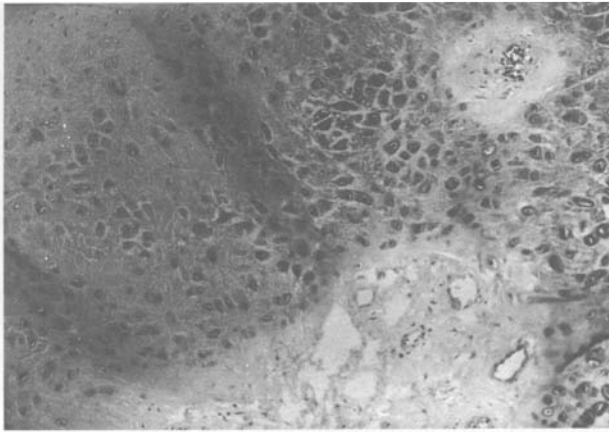


FIG. 3

Connective tissue with vessels and lymphatics were completely enclosed with auricular cartilage (adult).

completely enclosed with auricular cartilage (Fig. 2) and four of them the intracartilaginous fibrous tissues with vessels and lymphatics were linked together with the fibrous tissues outside of the auricular cartilage in other section (Fig. 3). (2) The feature of auricular cartilaginous interruption was found in 22 auricles. (Fig. 4).

Discussion

It is well known that the auricle develops from six knob-like prominences originating on the first and second branchial arches. These prominences gradually fuse and fold to provide the cartilaginous skeletal support of the auricle. The fusion of hillocks is a rather complicated process and may cause locus minoris abnormality, such as incomplete folding to create a residual planes with potential space (Engle, 1966; Hansen, 1967; Santos *et al.*, 1974) or interruption of the auricular cartilage. We also found that the fibrous tissue, vessels and lymphatics are enclosed completely by auricular cartilage and others were linked with that of outside the cartilage. We think that these conditions were contributed from abnormal folding of the prominences. These features may explain that inflammation in skin or subcutaneous tissue will get chance to be spreaded into intracartilaginous fibrous tissue with vessels and lym-

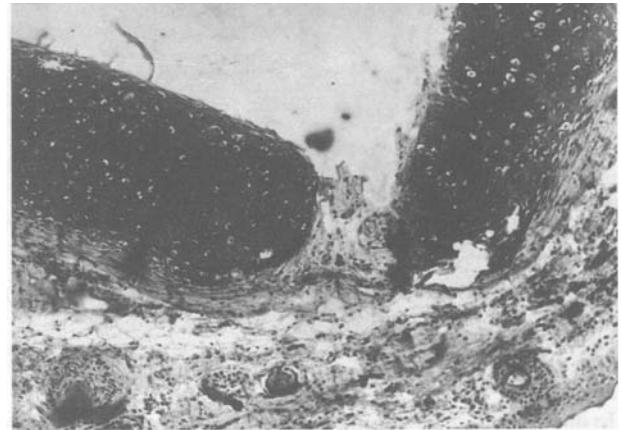


FIG. 4

Interruption of auricular cartilage (adult).

phatics to form a pseudocyst, but there is no way to determine the exact relationship between the formation of pseudocyst and dysplasia of the auricle up to now.

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Key words: Histology; Ear cartilages; Schonlar ear