

The frontoethmoidal architecture: a developmental point of view

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The anatomy of frontal sinus drainage pathway (FSDP) and surrounding spaces is extremely complex and variable. Its anatomical variability can be simplified based on the knowledge of the developmental mechanism of the frontal recess. The frontal sinus develops from the 13th week of intrauterine life to the age of twenty through a number of well-known steps of progressive extension within the frontal bone. Its development results from an upward epithelial migration of the anterior ethmoidal cells that penetrate the inferior aspect of the frontal bone between its two diploic plates. Even though this developmental theory is almost universally accepted, only few Authors focused on the formation of FSDP prior to the extramural pneumatization (1-2). The results of the present study conducted on 14 human heads match with the developmental model proposed by Terracol and Ardouin (2), in fact a number of significant associations are conform to the process of growing of the frontal sinus from one out of the three primordial cells (i.e. orbital, nasal, or bullar cell). In this model, renewed in view of the observation of the present study, the hierarchical order of growing among primordial cells determines the final frontoethmoidal architecture.

References

- [1] Terrier et al. (1985) Anatomy of the ethmoid: CT, endoscopic, and macroscopic. *AJR Am J Roentgenol*; 144: 493.
- [2] Terracol et al. (1965) *Anatomie des fosses nasals et des cavites annexes*. Maloine, Paris.

Keywords

FSDP; frontal sinus; frontoethmoidal architecture; development.