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Origin of the epithelial anlage of the bursa of fabricius

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The bursa of Fabricius is a central lymphoid organ of birds that is responsible for B lymphocyte development and maturation. It is generally believed that the bursal epithelium is derived from endoderm. However, since the bursa arises from a diverticulum off the cloaca, where endoderm and ectoderm are juxtaposed, both germ layers can contribute to the bursal epithelium. Furthermore, the bursal duct enters the proctodeum, which is an ectodermal derivative of the cloaca, supporting an ectodermal origin for the bursa. The aim of our study was to clarify the endodermal or ectodermal origin of the bursal epithelium. We generated chick-quail tailbud chimeras by transplanting quail tailbud ectoderm into the chicken tailbud and incubating for 12 days. In these chimeric embryos, the developing bursa was comprised of quail ectoderm and chicken hemopoietic cells. The presence of QCPN+/cytokeratin+ bursal epithelium in the grafted quail tailbuds indicated that the bursal epithelial cells were derived from the grafted ectoderm. Using in vitro tissue recombination experiments, followed by intracoelomic transplantation, we found that the bursa mesenchyme did not contain follicles unless the cloacal ectoderm was included. Our findings suggest that the proctodeal ectoderm invaginates into the tailbud mesenchyme to form the epithelium of the bursa.

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Analysis and standardization of the anastomoses between the affluents of origin of the hepatic veins. Study on corrosion casts

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The hepatic veins (components of liver's efferent pedicle) are situated in the plane of the portal fissures. The right hepatic vein is situated in the plane of the right portal fissure, the middle hepatic vein in the plane of the main portal fissure and the left hepatic veining the plane of the umbilical fissure. The presence of anastomoses between the affluents of the hepatic veins is controversial in anatomy, their existence in the normal liver being alternatively accepted or denied. In order to demonstrate the anastomoses between the affluents of origin of the hepatic veins, as well as to discover some of the possible causes of their appearance in the normal liver, we analyzed 100 hepatic corrosion casts (from persons without previous hepatic diseases). The livers were injected with plastic (AGO II paste and TECHNOVIT 7143), followed by parenchyma corrosion with hydrochloric acid. According to the intraparenchymal distribution of the hepatic veins, we considered 3 hepato-venous segments (left, middle and right, the latter having sub segments if there were 1 or 2 supplemental right hepatic veins). Considering the venous trunks connected, the venous anastomoses were classified in 4 size categories (the first order being represented by anastomoses between the trunks of the hepatic veins). According to their location, we found two distinct categories of anastomoses: venous intersegmentary anastomoses and venous intrasegmentary anastomoses. In the 100 hepatic corrosion casts we found 288 anastomoses (the anastomoses of III-rd and IV-th order usually with a diameter larger than 1 mm). In some corrosion casts injected with ultra fluid plastic we found, at the level of liver's inferior margin, numerous anastomoses of superior order but with diameter much less than 1 mm, that were not considered in this study. The 288 anastomoses were classified into 4 size orders, as follows: I-st order – 2.08% (6/288 casts), II-nd order 19.44% (56/288 casts), III-rd order 39.93% (115/288 casts) and IV-th order 38.55% (111/288 casts). The 6 anastomoses of I-st order were always found between the trunks of the right hepatic vein and of the middle hepatic vein (intersegmentary anastomoses). Most of the anastomoses (74.30%, 214/288 casts) were intersegmentary. In 25.70% (74/288 casts) the anastomoses were between the affluents of origin of the same hepatic vein (intrasegmentary anastomoses). The overall analysis of the intraparenchymal distribution of