Histology of pig and chicken lymphoid organs

Introduction

The immune system consists of a complex network of various cells, tissues, and organs, that work together to protect the body against infections and diseases. Lymphoid organs are critical components of the immune system and can be categorized into primary and secondary lymphoid organs (PLO and SLO). Primary lymphoid tissues serve as sites for the formation and maturation of lymphocytes. Secondary lymphoid tissues serve as a filtering system where naïve lymphocytes are activated by the encounter with their specific antigen.

The structure and location of lymphoid organs can differ among species. A thorough understanding of these differences can aid in unraveling the evolution of lymphoid organs and the immune system as a whole. Histological sections of lymphoid organs can provide valuable insight into the structure and organization of lymphoid organs, and allow the identification of characteristic organ structures and subpopulations of various cells of the immune system. In the current work, histological sections made from pig or chicken lymphoid organs are examined.

Methods

Lymphoid organs were harvested and immediately fixed in 4% formalin. The organs were paraffinized and dissected, and subsequently stained with hematoxylin and eosin (H&E) staining for visualization under a microscope. Microscopy images of the pig spleen, pig lymph node, pig thymus, and chicken Bursa of Fabricius tissue were examined. Apple Photo Editor was used to indicate different structures on the images.

Results

The results of the histological analysis are provided in Figures 1, 2, 3, and 4.

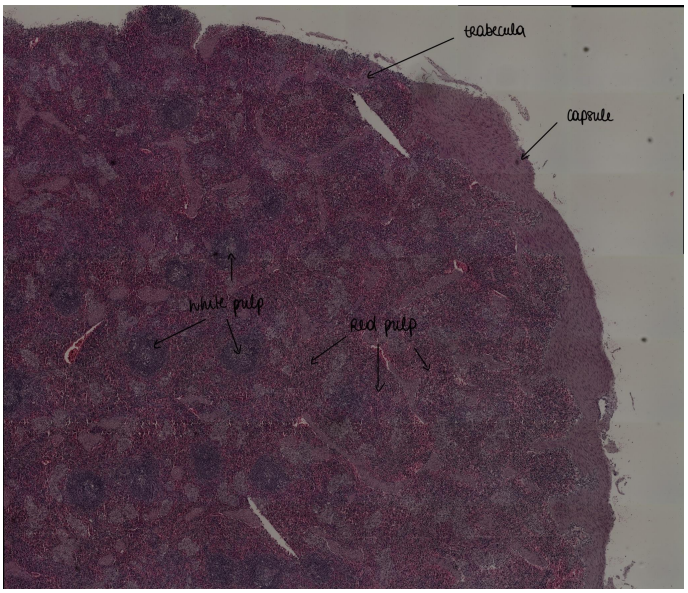

Figure 1: Histology of pig spleen tissue which was fixed in 4% formalin after organ harvesting. The organ was paraffinized and dissected, followed by H&E staining. Features of the spleen include the white pulp, red pulp, trabeculae, and capsule (marked by arrows). (H&E, 20x); H&E, hematoxylin and eosin.

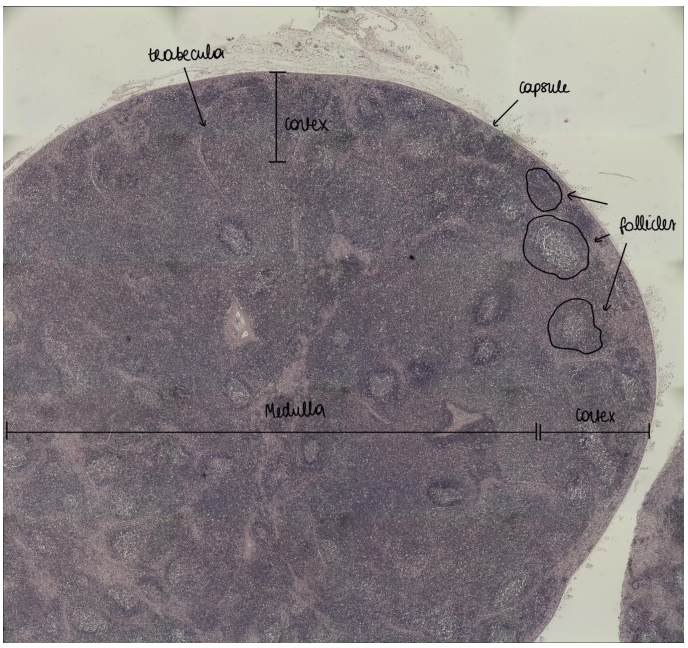

Figure 2: Histology of pig lymph node tissue which was fixed in 4% formalin after organ harvesting. The organ was paraffinized and dissected, followed by H&E staining. Features of the lymph nodes include follicles, trabeculae, and capsule (marked by arrows) as well as the medulla and cortex (marked by line segments). (H&E, 10x); H&E, hematoxylin and eosin.

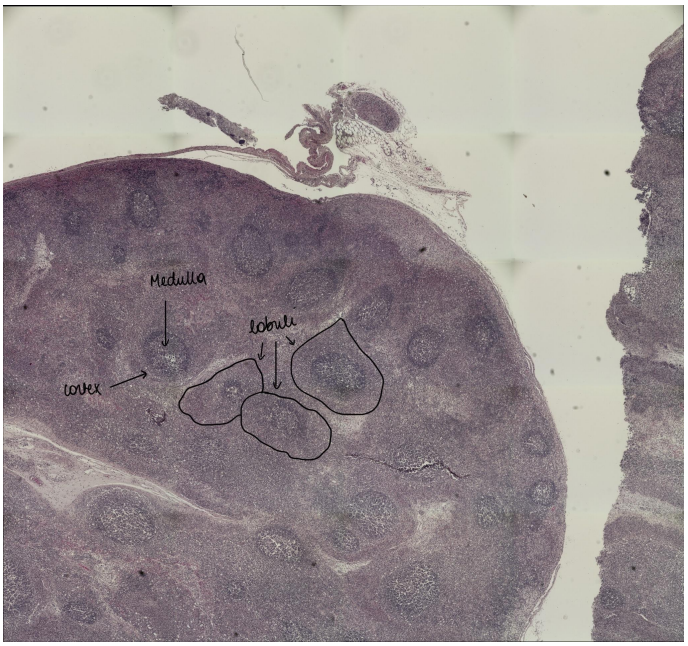

Figure 3: Histology of pig thymus tissue which was fixed in 4% formalin after organ harvesting. The organ was paraffinized and dissected, followed by H&E staining. Features of the thymus include lobuli, the medulla, and the cortex (marked by arrows). (H&E, 10x); H&E, hematoxylin and eosin.

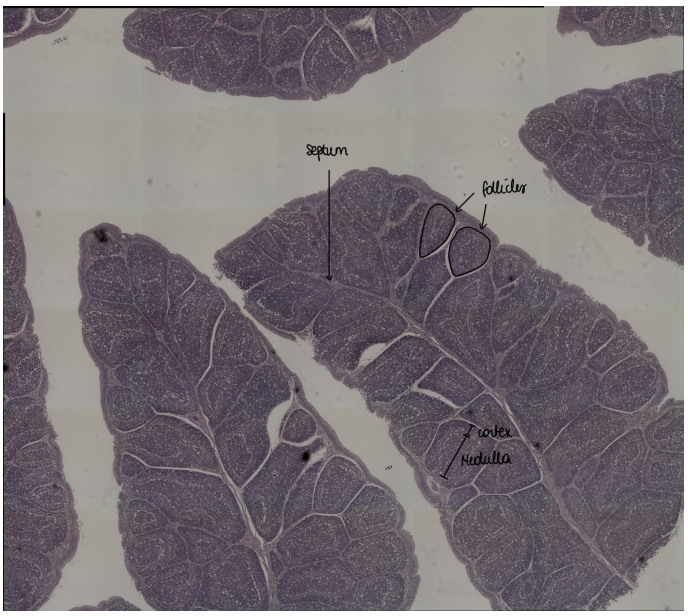

Figure 4: Histology of chicken Bursa of Fabricius which was fixed in 4% formalin after organ harvesting. The organ was paraffinized and dissected, followed by H&E staining. Features of the Bursa of Fabricius include follicles and the septum (marked by arrows), as well as the medulla and the cortex (marked by line segments). (H&E, 20x); H&E, hematoxylin and eosin.

Conclusion

The histological analysis of the pig spleen, pig lymph node, pig thymus, and chicken Bursa of Fabricius tissue can provide valuable insights into the characteristic organ structures and subpopulations of various cells of the immune system.