



# **Anatomical, Morphometrical and Histological Properties of Harderian Gland in male Rabbits and Guinea Pigs**

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- ✓ The Harderian gland (*Glandula palpebrae tertiae profunda*) is an exocrine gland with a secretion of varying character in mammals, birds, rodents, amphibians and reptiles.
- ✓ It is well developed in lagomorphs and rodents.
- ✓ Harderian gland, lies in the nasal canthus and is associated with the third eyelid. It has therefore also been addressed as *glandula palpebrae tertiae profunda*, to distinguish it from the *glandula palpebrae tertiae superficialis*.

# **Materials and Methods**

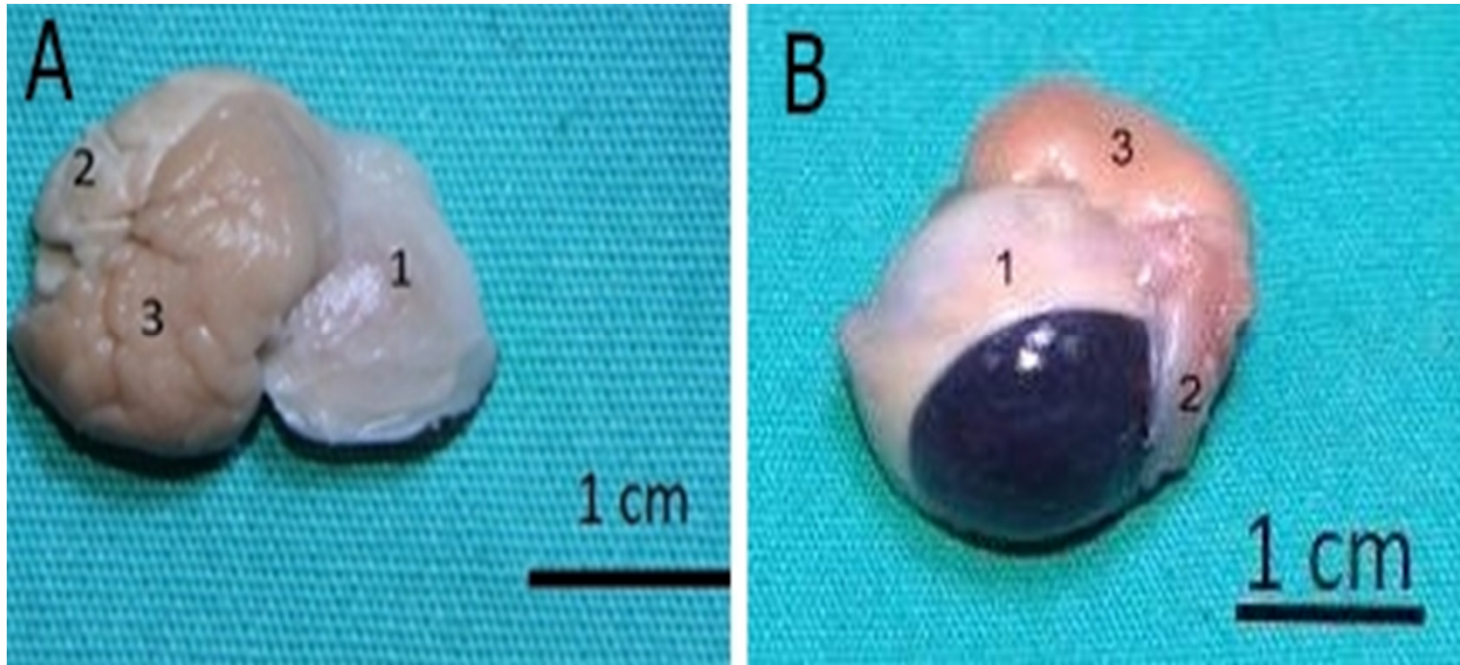
For this purpose ;

- 26 adult male rabbits
- 23 male guinea pigs were used.
- The Harderian glands were examined macroscopically.
- For histological examination tissue samples were stained with hemotoxylin eosin.

# Results

# Rabbit

- **The Harderian gland in rabbit was identified to be localized ventromedial to bulbus oculi. The horseshoe shaped gland consisted of two lobules of pink or white colour.**
- **The pink lobule had a pale eosinophilic cytoplasm that recessed and seperated by a slight stroma while the white lobule showed a dark eosinophilic cytoplasm.**
- The dorso-ventral and latero-lateral lengths of the pink lobule of right Harderian gland were specified as 8.93 mm and 15.02 mm respectively while the dorso-ventral and latero-lateral lengths of the white lobule were 6.16 mm and 13.28 mm respectively. The dorso-ventral length of the pink lobule of left Harderian gland was determined approximately 9.83 mm and latero-lateral length was 14.37 mm. And the dorso-ventral length of the white lobule was specified as 6.75 mm and latero-lateral length was specified as 13.68 mm.
- The total weight of the right and left Harderian gland were found as 0.614 g. and 0.610 g., respectively.
- **When parameters of the right and left glands were compared statistically, no significant differences was observed ( $p>0,05$ ).** The pink lobule had higher values than white lobule with regard to dorso-ventral ( $p<0,001$ ) and latero-lateral ( $p<0,05$ ) lengths.

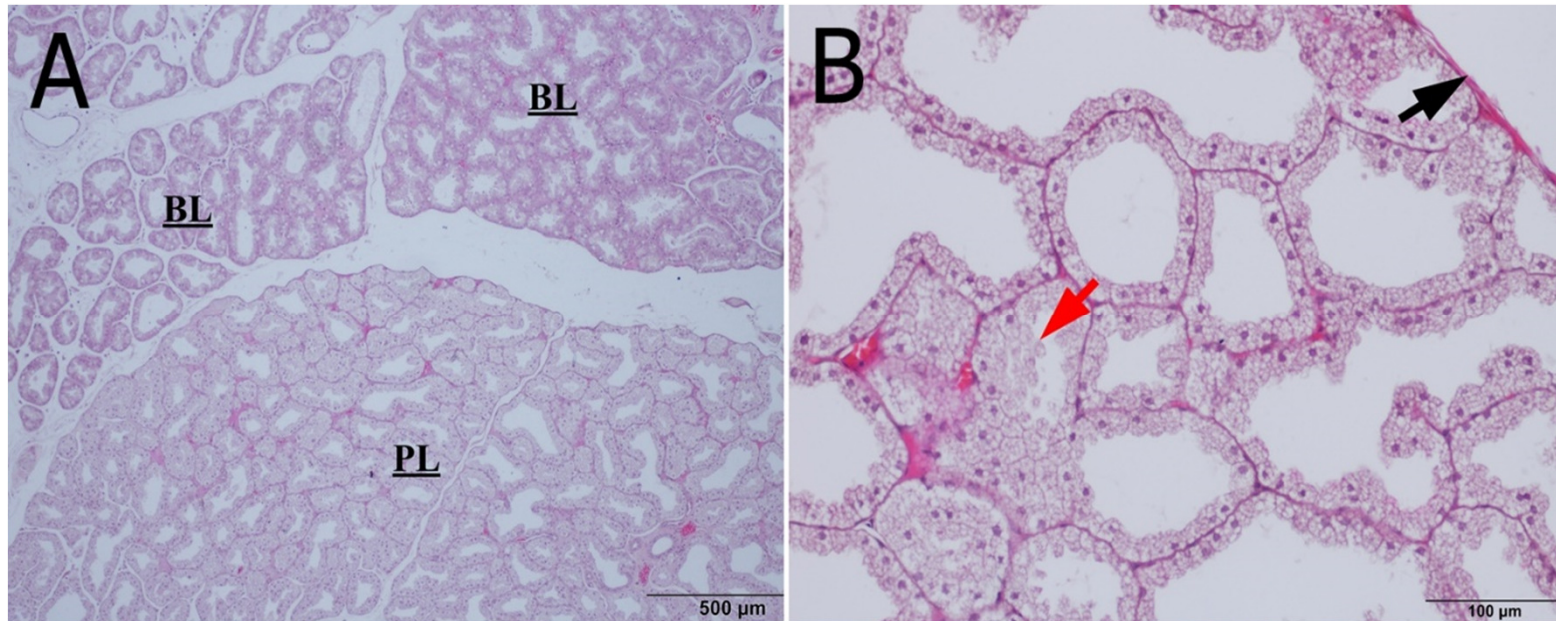


**Picture 1:** Rabbit right H.G view (A): Palpebra tertia (1), White lobes of the HG (2) , Pink lobes of the HG (3). Rabbit right bulbus oculi and HG (B): Bulbus oculi (1), palpebra tertia (2), White lobes of the HG (3).



**Picture 2:** Rabbit HG; 1.N.Opticus , 2.Palpebra tertia , 3.HG-White lob





**Picture 3:** Rabbit HG's histological view(A, B). BL; White lob, PL; Pink lob,Black arrow ; capsule,Red arrow; lumen spilled material.

# Guinea Pig

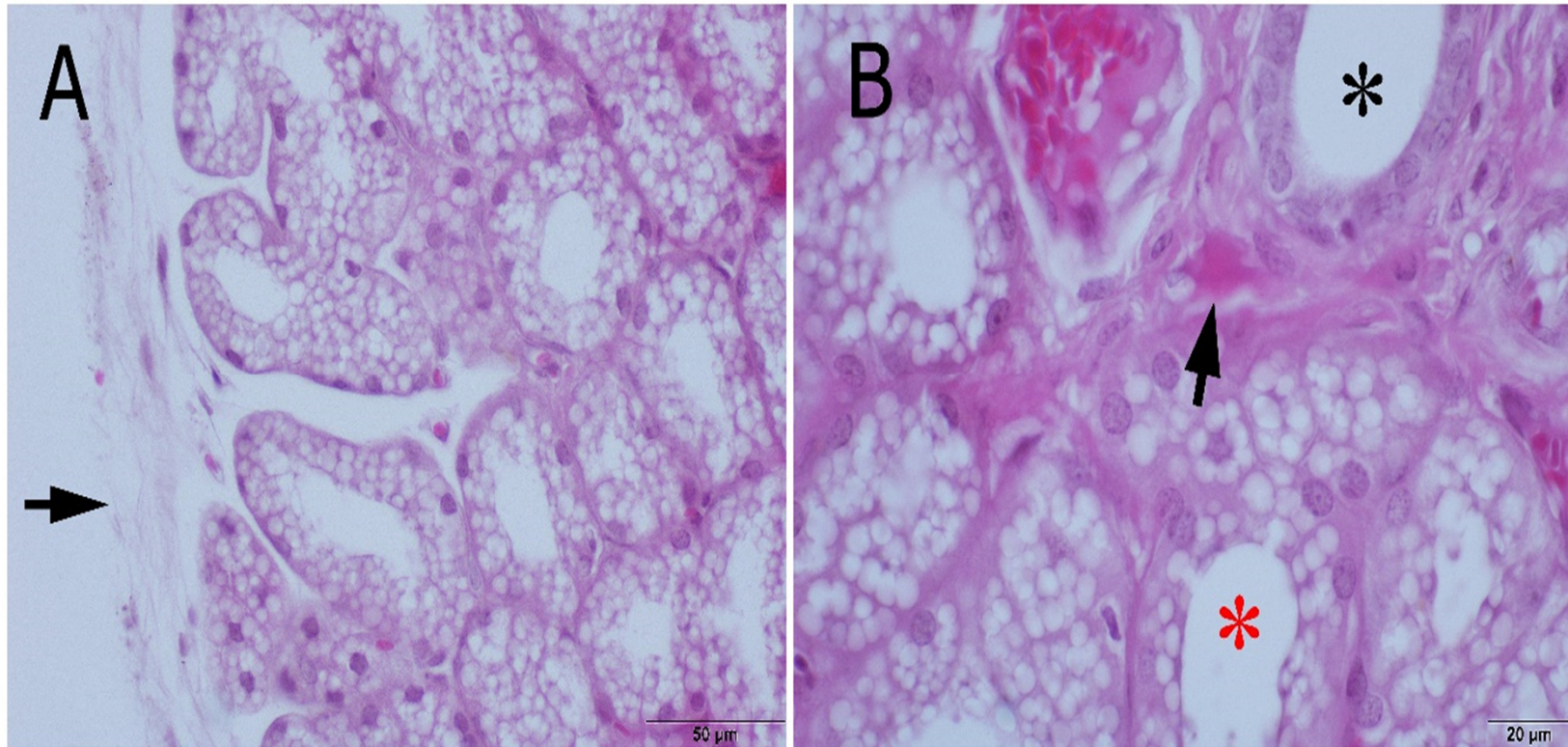
- The Harderian glands in guinea pigs were located caudally to the bulbus oculi, and had only one lobe. The gland was determined as pinkish-white in colour and circular shaped.
- The mean weights of the right and left glands were specified as  $0.505 \pm 0.02$  g and  $0.472 \pm 0.02$  g, respectively.
- In the histological examination of Harderian glands in guinea pigs, the tubuloalvolar structures surrounded by a slight stroma with a dark eosinophilic cytoplasm were detected.
- ***No statistical difference were found between the right and left glands in terms of DV and LL lengths and weight parameters ( $P > 0.05$ ).***



**Resim 4** :Guinea pig left harderian gland.



**Picture 5: Guinea pig Harderian Gland**



**Picture 6:** Guinea pig histology view (A): Black arrow ; capsula. Guinea pig histology view (B): Black arrow ; kollagen, Black star; ductus structure, Red star; alveol structure.

In the end of this study, several diversities of Harderian glands were observed in the male rabbits and the guinea pigs anatomically and histologically. That is anatomically similar structure with guinea harderian gland consists of two lobes except the rabbit's harderian gland was detected.

In conclusion ; anatomycall , morphometricall ,histologycall difference were seen between rabbit and guinea pig gland.



Thanks

