

Acinar Cell Types in the Pancreas of Frugivorous Bat *Rousettus leschenaulti* (Desmarest)

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Abstract

The pancreas is an unique exocrine and endocrine gland secretes both enzymes and hormones respectively. The pancreas of frugivorous bat *Rousettus leschenaulti* was consisting of head neck and bilobed tail or uncinata process. The length of uncinata ranges between 1.0 to 1.7 cm. Histologically the exocrine part of pancreas of *Rousettus leschenaulti* before and after foraging shows different acinar cell types. During before foraging stage the pyramid shaped cells with spherical nucleus are the "Active acinar cells". The size of the nuclei measures between 3.57 μ to 4.25 μ . while bats with after foraging stage shows cuboidal shaped with oval nucleus with more chromatin and zymogen granules shows "Resting acinar cells". The size of the nuclei ranges between 2.67 μ to 3.92 μ in diameter. The pacinian corpuscles were observed at after feeding stage and were not found at before feeding stage.

Keywords : Acinar cell, Bat, Pancreas, *Rousettus leschenaulti*

1. Introduction

Chiroptera is one of the largest order of mammals includes over hundred genera most of the genera were insectivorous bats, others are frugivorous, fish eating, nectar and pollen eating and even flesh eating. In spite of diversity in habit no detail regarding the structure and secretory activity of cell types of exocrine pancreas observed. Very little is known about the pancreas of bat. (Thomas 1938, Robert Hinkley and Paul Burton 1970, Michelmor A. et al. 1998) The most of the work on pancreas is related with endocrine part very little work is done on the exocrine part of the pancreas. (Bloom and Fawcette 1968, Malik Prakash 1972, Singh 1980) The present investigation is on the exocrine part of pancreas of *Rousettus leschenaulti* collected at different intervals to identify the structure and secretory activity of its acinar cells.

2. Material and Method

Rousettus leschenaultia (Desmarest) collected with the help of butterfly net at different times of day with a view of studying the effect of feeding on the histomorphological structure of the pancreas. Accordingly collections were made just before the animals left their roost for foraging and soon after they return back to their roost after foraging. After recording body weight and sex specimens were killed in chloroform and pancreas were obtained and fixed in neutral buffered formalin for histological and cytological studies. Routine paraffin blocks were prepared and cut at 6 μ thick and employed different cytological techniques.

3. Result and Discussion

Pancreas of *Rousettus leschenaulti* is a compact gland which is exocrine as well as endocrine in nature while it is diffuse in rats. (Dao 1991) Morphologically it is recognize into head, neck, body and tail. (Fig 1) Head is small rounded bead like structure connected with bilobed body by narrow neck. The body of pancreas measured about 1.0 to 1.7 cm. in length.

Histologically pancreas contain small lobules which remain separated by thin connective tissue septa. Each tubule consisting 6 to 10 closely packed acinar cells with centro acinar cells forming ducts. In the before feeding stage each acinar cells is pyramid in shape with prominent basal nucleus and light stined cytoplasmic material. The size of the nuclei measures between 3.57 μ to 4.25 μ (Fig.2) The subnuclear and

lateronuclear areas of cytoplasm are chromophilic in their staining property. The active acinar cells are observed during before foraging stage. It is observed by Bloom and Fawcett 1968 and Singh 1980 in domestic animals. The inter lobular and intercalated ducts in most part of exocrine part is empty with minimum secretion during this stage. Similarly no pacinian corpuscles are observed during this stage. The *Rousettus leschenaultia* collected when they come back to their roost in the morning after foraging. The pancreas of these bats not shows significance difference in shape size as compare to before foraging stage. Histologically exocrine pancreas shows large number of pacinian corpuscles. (Fig.3) As it is observed by Alfred Trautmann and Josef Fiebtger 2002. Acinar cells appear cuboidal in shape with basally situated oval nuclei (Fig. 4) with a size of 2.67 μ to 3.92 μ in diameter . The chromatin material in nucleus appears dense. The lateronuclear region appears chromophilic due to presence of rough endoplasmic region. The apical region of acinar cells shows eosinophilic zymogen granules. At after foraging stage resting acinar cells are observed. Which are also observed by Singh 1980 in many domestic animals.

4. Acknowledgement

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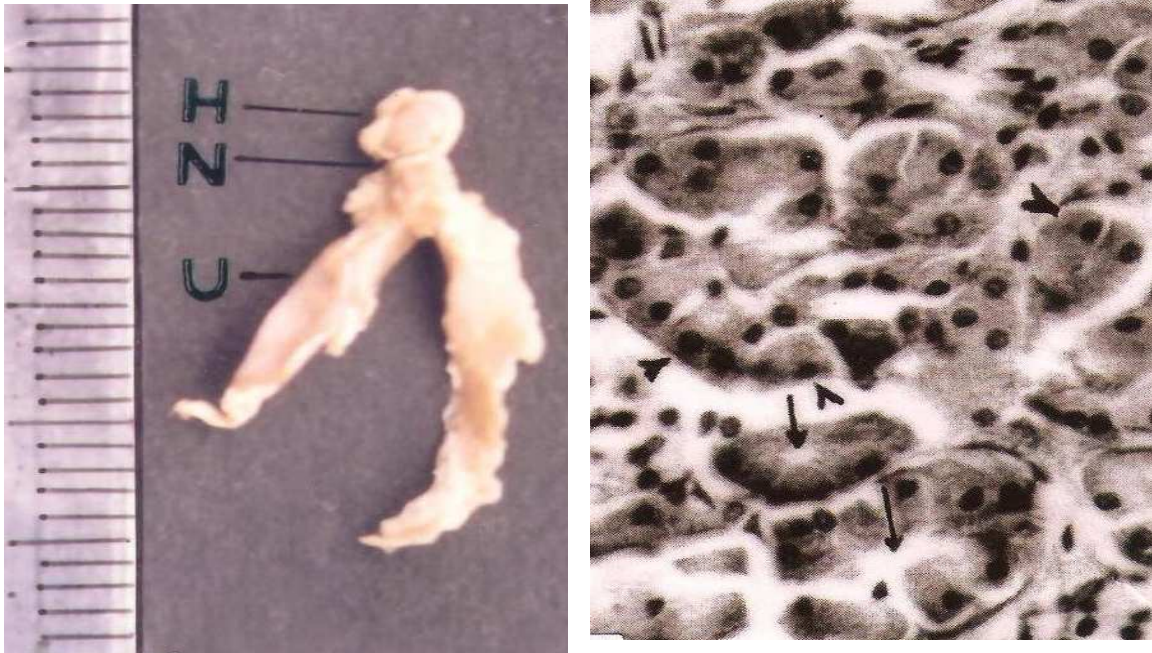


Fig. 1 Pancreas of *Rousettus leschenaulti* shows head neck and tail or uncinata

Fig. 2 Transverse section of pancreas of *Rousettus leschenaulti* at before foraging HE X 567

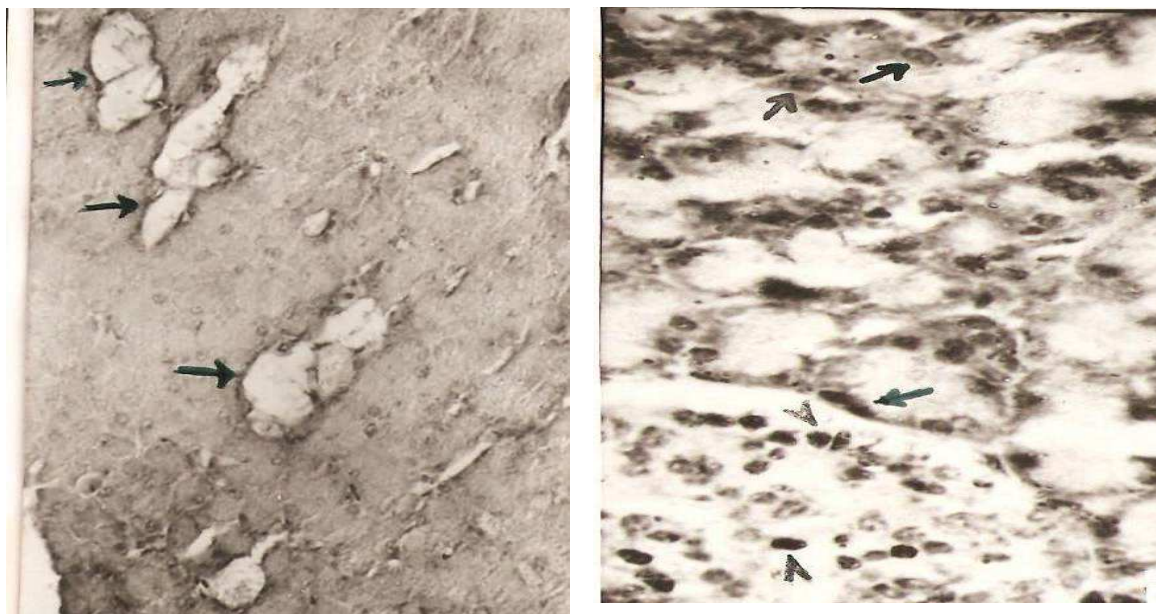


Fig. 3 Transverse section of pancreas during after foraging shows pacinian corpuscles. HE X 256

Fig. 4 Transverse section of pancreas during after foraging shows oval nuclei HE X 567

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