



# Histological and Histochemical studies on Ampullae in prepubertal and pubertal Ram

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**Abstract :** In the present study the ampullary glands were branched tubulo alveolar type. The alveoli were lined by pseudostratified tall columnar epithelium and core of mucosal folds were lined by pseudostratified tall columnar epithelium in prepubertal as well as pubertal ram. The lumen of the ampulla of the pubertal ram was relatively smaller than prepubertal ram.

**Key words :** Histology, Histochemical, ampullae, Prepubertal, Pubertal, Ram

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## INTRODUCTION

Very limited information is available in literature on histology and histochemistry of ampullae in prepubertal and pubertal ram.

## RESEARCH METHODOLOGY

Ampullae were obtained from twelve Deccani sheep bread rams, Animals were divided into two groups. Each group consists of six animals. Group-I prepubertal (2 to 4 months of age) Group-II Pubertal (10 to 24 month of age). 5mm thickness longitudinal and transverse thin tissue pieces were obtained from middle and terminal part of ampullae. The collected thin tissue pieces were fixed in 10 per cent formal saline, 10 per cent neutral buffered formaline, cornoys fluid. The fixed tissue were processed by adapting the standard method of dehydration through graded alcohol and clearing through xylol and infiltration. Impregnation in the paraffin wax of 58°C to 60°C melting point.

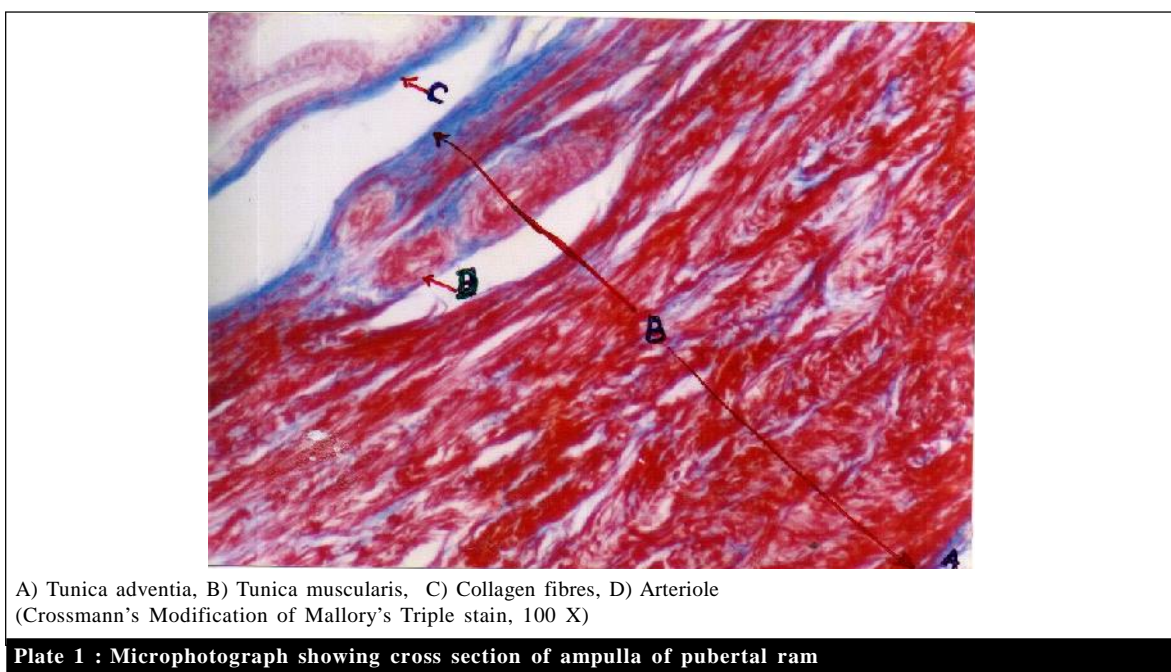
The tissue contained paraffin wax blocks were prepared by arranging brass metal 'L' molds. The thin sections of the tissue were obtained with the help of manually operated Rotatory microtome machine. The obtained thin tissue were put on the water into the tissue floating bath at the temperature 43°C to float the tissue and facilitate the paraffin embedded tissue ribbon while mounting the sections on the glass slide.

The following staining methods were used to stain the tissue for various histological and histochemical observations.

Harrie's Haematoxyline and Eosin for general (Mukherjee, 1990) Cross mann's Modification of Mallorys Triple Stain for Collagen and elastic fibres (Singh and Sulochana, 1978), McManus Periodic Acid Schiffs (PAS) stain for demonstration of glycogen and mucin (Mukherjee, 1990). Crystal violet stain for amyloids (Glycoproteins) (Mukherjee, 1990), Modification of Moury's colloidal iron stain for acid mycopoly saccharide (Singh and Sulochana, 1978). The micrometrical observations were recorded with the help of ocular micro meter duly calibrated with stage microns of micrometrical observations were subjected to statistical analysis by standard method of Panse and Sukhatme (1969).

## RESULTS AND DISCUSSION

The wall of the ampullae in pre pubertal and pubertal ram consisted of Tunica adventitia, Tunica muscularis and Tunica mucosa. Tunica adventitia was the outer most layer made up of connective tissue, blood vessels and nerves. The connective tissues were collagen, reticular and few elastic fibres arranged irregularly (Plate 1). Tunica muscularis was highly vascular. It consist of outer longitudinal and inner circular smooth musde fibres in prepubertal and pubertal groups (Plate 1).



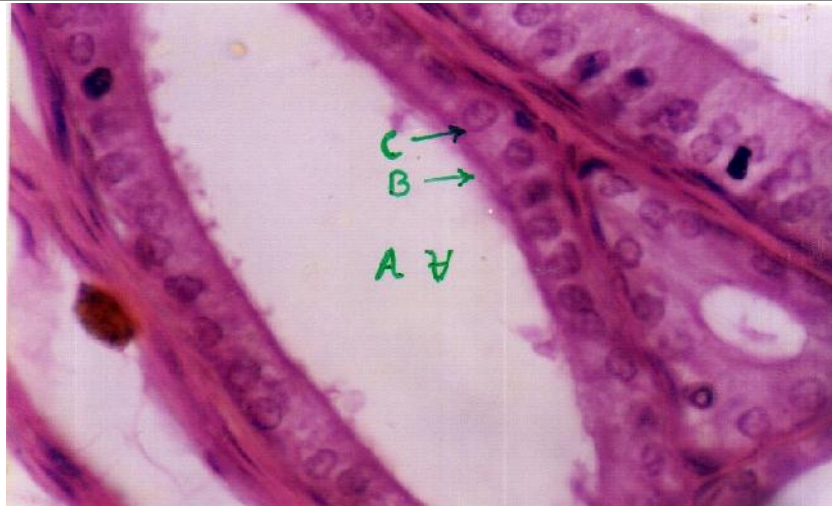
The mucosa presented lamina propria. Submucosa consisting of loosely arranged collagen, reticular and elastic fibres. Mucosal folds projected the lumen and were lined by pseudostratified epithelium with tall columnar cells and mucosal folds were projecting into the lumen comes neares in pubertal whereas, mucosal folds end were apart from each other. So the lumen of the prepubertal animal was relatively smaller than pubertal ram. At the base of the lamina propria the secretong alveoli were present and lined by pseudostratified total columnar epithelium with few basal cells (Plate 2).

In the core of mucosal folds present saclike dialations and the secretary end pieces were observed. Some secretary end pieces were dialated and were lined by pseudostratified columnar epithelium (Plate 3).

Presence of simple branched tubule alveolar glands in the propria submucosa noted in present study was in accordance with the Dellmann and Brown (1987).

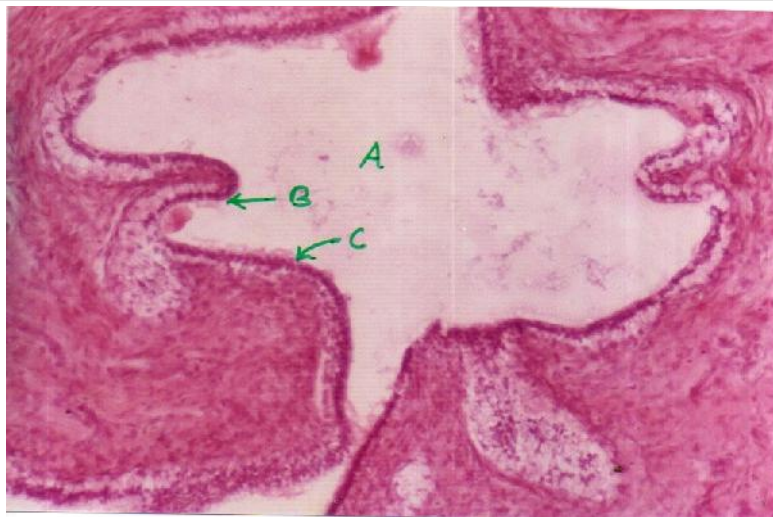
The micrometrical observations were given in Table 1 and could not be discussed for want of such description in literature.

PAS reaction showed moderate positive activity at apical border of epithelium, mucosal folds and mild reaction



A) Lumen of alveoli, B) Pseudostratified tall columnar epithelium, C) Nucleus  
(McManus Periodic Acid Schiff's Stain 400 X)

**Plate 2 : Microphotograph showing cross section of ampulla of pubertal ram**



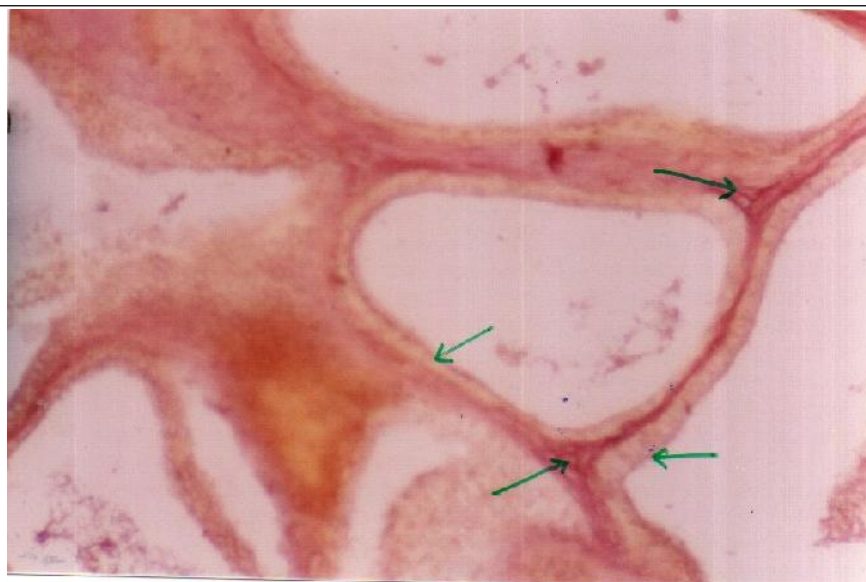
A) Lumen of ampulla, B) Projecting mucosal fold, C) Pseudostratified epithelium, D) Solid alveoli  
(Haematoxyline and Eosin Stain 100 X)

**Plate 3 : Microphotograph showing cross section of ampulla of Prepubertal ram**

at the tunica muscularis and interstitial tissue (Plate 2). Colloidal iron staining method showed mild AMP (Acid Mucopoly Saccharide) reaction at the luminal border of the epithelial cells of the alveoli, basement membrane, interstitial tissue, tunica muscularis and tunica adventia (Plate 4).

Crystal violet staining method showed moderate activity of amyloids at apical border of epithelium lining of mucosal folds and mild reaction at the interstitial tissue and tunica muscularis.

Dellman and Brown (1987) and Dellmann (1987) reported that in remnants glandular epithelium was rich in glycogen. The same findings were recorded in the present study. PAS reaction showed moderate activity at apical border of epithelium. However, Pal and Bharadwaj (1986) observed mild PAS reaction at the apical portion of epithelium in buffalo bull.



(Mowry's Colloidal Iron Stain 100 X)

**Plate 4 : Microphotograph showing cross section of ampulla of pubertal ram showing reaction for acid mucopolysaccharide (Arrow)**

Table 1 : Micrometrical observations of ampulla ( $\mu$ ) in ram				
Group / Parameters		Prepubertal	Pubertal	Statistics
Height of epithelium	Range	11.52 – 17.28	15.36 – 24.96	S
	Mean	14.01 $\pm$ 0.86	19.00 $\pm$ 1.01	
Diameter of alveoli	Range	80.60 – 112.84	96.72 – 120.90	S
	Mean	95.10 $\pm$ 3.13	109.61 $\pm$ 2.46	
Thickness of <i>T. muscularis</i>	Range	112.84 – 137.02	161.20 – 197.32	S
	Mean	127.34 $\pm$ 2.63	182.54 $\pm$ 3.39	

S = Significant

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