PATHOLOGICAL STUDY OF SHEEP ABOMASAL NEMATODS IN WASIT PROVINCE.

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ABSTRACT

A total of 450 abomasums sheep examined only 15 infected and non infected abomasal were collected of different ages and sexes during a peroid from October 2013 till March 2014 from different areas in Waist province . The results of the study were showed the gross lesions of abomasal nematodes included congestion , thickened mucosa with petechial hemorrhage , edema and occurrence of small nodules and ulceration in the abomasum's . microscopicallesions included ulceration epithelial layer , with mononuclear cell infiltration , degeneration of some mucosal gland with sloughing as well as goblet cell hyperplasia

INTRODUCTION

Helmins or *helmintho*s is the Greek word which means worm and host is derived from the Latin *hospes*, a house or house hold , Helminths of veterinary importance belong to Phylum:-Nemathelminths, class of Nematode, **(1).** Infection by abomasum's worm Trichostrongyles (nematoda: strongylida) is a major global threat for sheep production **(2)**. These parasites impair animal health and welfare and cause significant economic losses, infected animals normally fail to thrive, which in turn results in reduced wool and milk production but can also affect fertility **(3)**. The species of nematodes that affect

sheep abomasum the most belong to superfamily trichostrongyloidea and include *Haemonchus,Trichostrongylus, Ostertagiaspp*and .*Marshallagia* **(4)**. Direct effects of parasitic gastritis are disturbed abomasal functions (reduced acid secretion, increase in serum pepsinogen and gastrin)and the loss of protein across the gut wall,with further negative metabolic consequences through anorexia, the induction of a negative nitrogen balance and the costs for repairing the damaged tissue and

mounting the immune response**(5)**. The aim of this studyestimation the histopathological changes of sheepabomasal infection.

MATERIALS AND METHODS

Samples Collection:-

A total of 450 sheep abomasums were collected from both sex and different ages during the period from October 2013 to March 2014 in Waist province was selected for the present study and used only 15 infected and 15 non infected abomasum . Abomasums were removed from abdominal lumen cavities and, immediately taken to the laboratory of Veterinary Medicine College of Waist University, for appropriate examine

Histopathological Sample Collection and Examination :-

Take 15 uninfected samples and another is infected abomasums to compare between them small pieces (5-10cm) of abomasum were fixed in 10% neutral buffered formaldehyde formalin. The specimens were dehydrated through ascending grades of ethanol (70, 80, 90, 90and 100%) each 2 hours, cleared in xylene and embedded in paraffin wax (Blocking). Sections of 5 to 6 µm were cut using Rotary Microtome. The sections were conveyed to water bath of 45^{o}C, fixed on slides containing Glycerin-Albumin mixture as a thin film and dried by using hot plate at 40^{o}C overnight. Sections were stained with hematoxylin and eosin stain as per standard procedure **(6)**. Representative tissue samples were also collected from sheep and processed by the same way. All slides were examined for histopathological changes.

RESULTS AND DISCUSSION

Pathological study:

Gross Pathological Changes:

Gross pathological lesions in the non infected animals, no pathological changes were detected in abomasums .(Fig.1, A). Observation ulceration in abomasum surface (Fig.1, B). In abomasal lining mucosa edema and congestion covered with dark-red petechiae and erosions with hemorrhage from superficial capillaries, (Fig. 1, C)

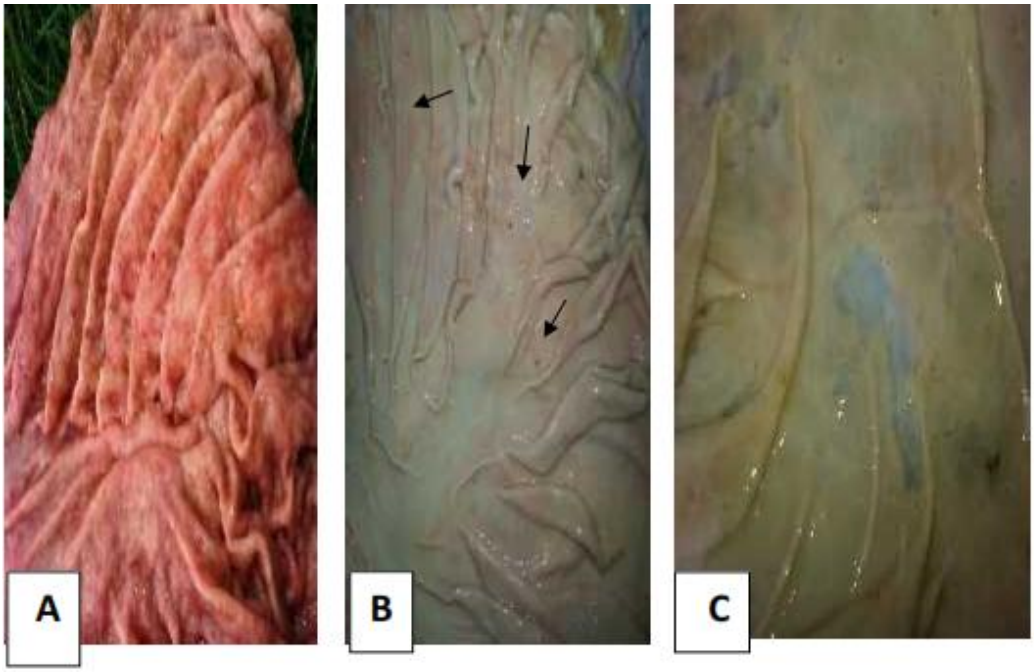

Fig.1: sheep abomasums A- no gross pathological lesions. B- Ulcerative lesions C- Hemorrhagic Foci

Histopathological changes:

The histopathological changes of abomasum was showed no clear lesion **(Fig: 2) .**On the other hand ,abomasal nematode characterized by the presence of ulcerated area of epithelial layers with tissue debris in the **(Fig: 3)**. .

In the other sections cellular infiltrations were seen in subepithelial and between mucosal glands **(Fig: 4)** consisted mainly of eosinophels ,neutrophels and mononuclear cells togather with degenerated between submucosal glands **(Fig: 5),** and also between degenerated villus of the stomach .In other sections the lesions characterized by fibrin deposition with inflammatory cells infiltrations in sub mucosa as well as ,vascular degeneration and necrosis were seen **(Fig:6)**, desquamation make of the Thrombus formation in the congested blood vessels with severe mononuclear cell and neutrophils in filtration in the mucosal gland region **(Fig:7)** or revealed ulceration of the epithelial layer which extended to submucosa in addation to inflammatory cells and fibrin deposition were seen **(Fig:8).**Thrombus formation with fibrin deposition and inflammatory cells particularly eosinophil's ,neutrophils and macrophages were seen in several sections **(Fig: 9**)**Figures (10,12)** were show

immature parasites surrounded by inflammatory cells filtration mainly seen in sub epithelial and between villus layerwhich eosinophil's, neutrophils and mononuclear cells were infiltrated between degeneration gland with goblet cells hyperplasia and **(Fig:11).** In other sections aggregation around larvae of nematode characterized by thick cuticle body cavity of muscular layer was seen mainly in the sub epithelial layer surround by inflammatory cells **(Fig:13).**.

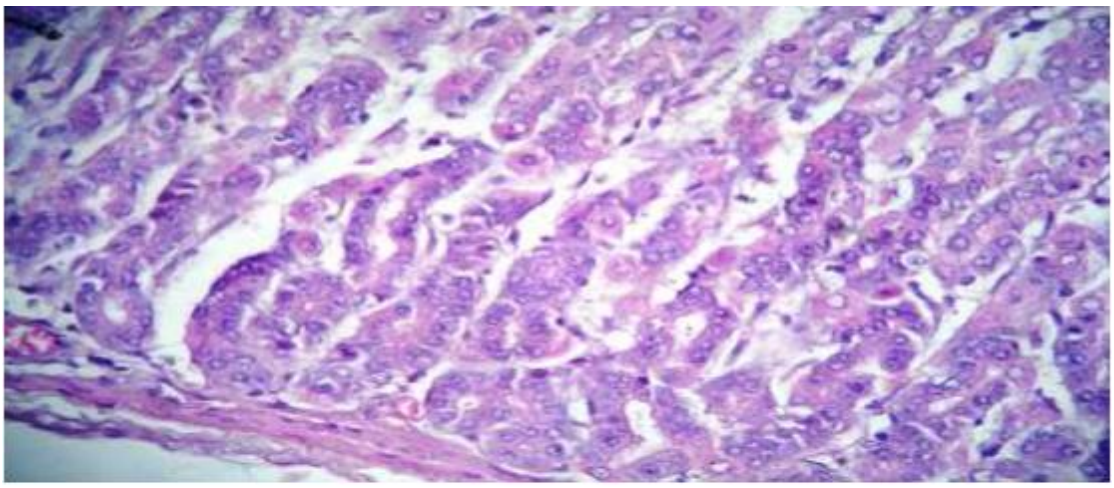

Fig2:Histopathological Section of sheep Abomasums of non Infected showed normal appearance of abomasal mucosa (H&E stain 10X)

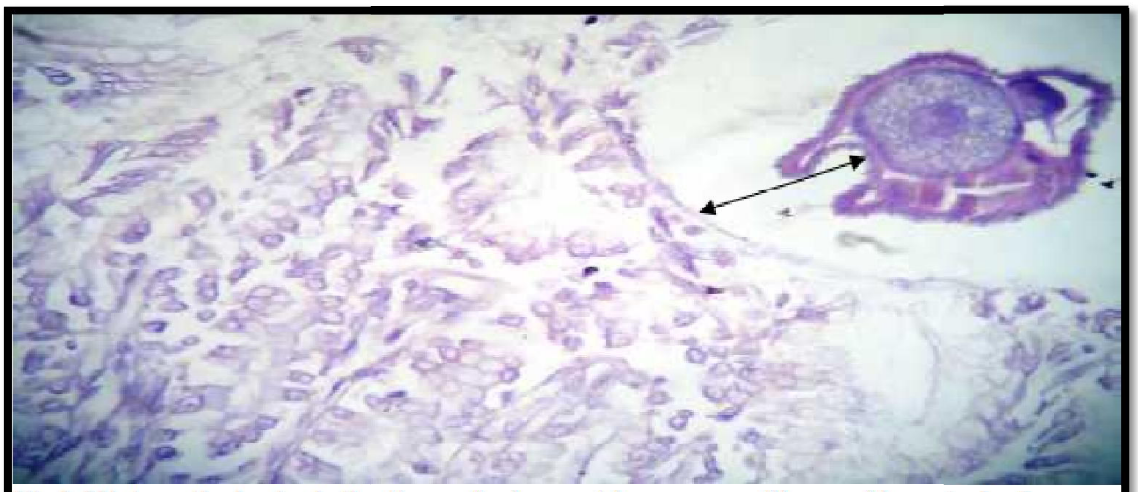

Fig3:Histopathological Section of sheep Abomasum Shows Nematode Larvae with Ulcerated Epithelial Layer (H&E stain 10X)

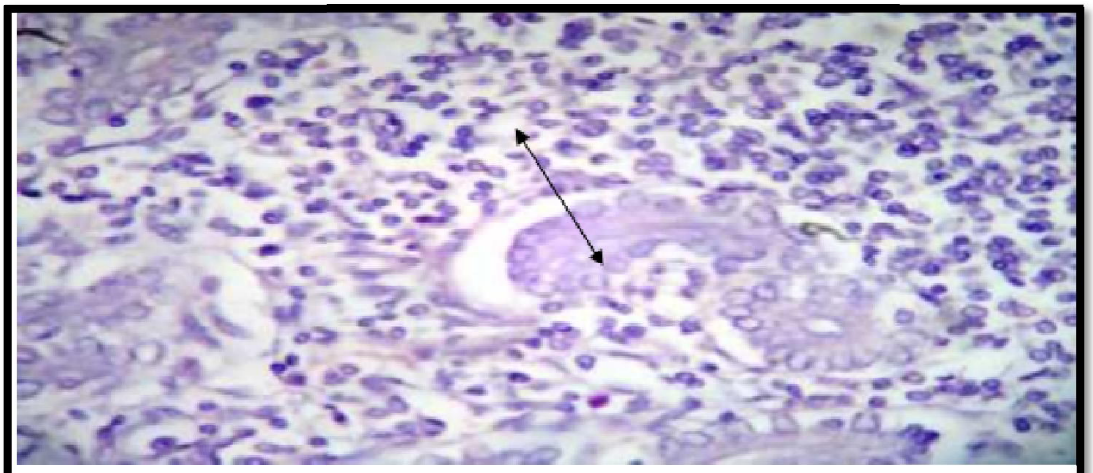

Fig5:Histopathological Section of Sheep Abomasums Shows Eosinophils , Lymphocytes and Macrophages Infiltrations Between Atrophy sub mucosal Glands ↔ (H&E stain 4OX)

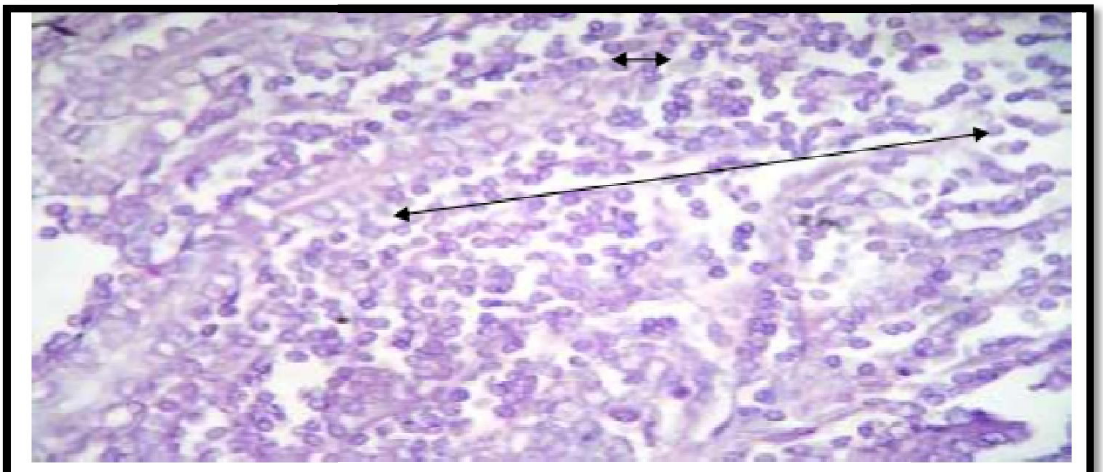

Fig4: Histopathological Section of Sheep Abomasum Shows aModerate Mononuclear Cells Aggregation in Sub epithelial Layer ↔ (H&Estain40X)

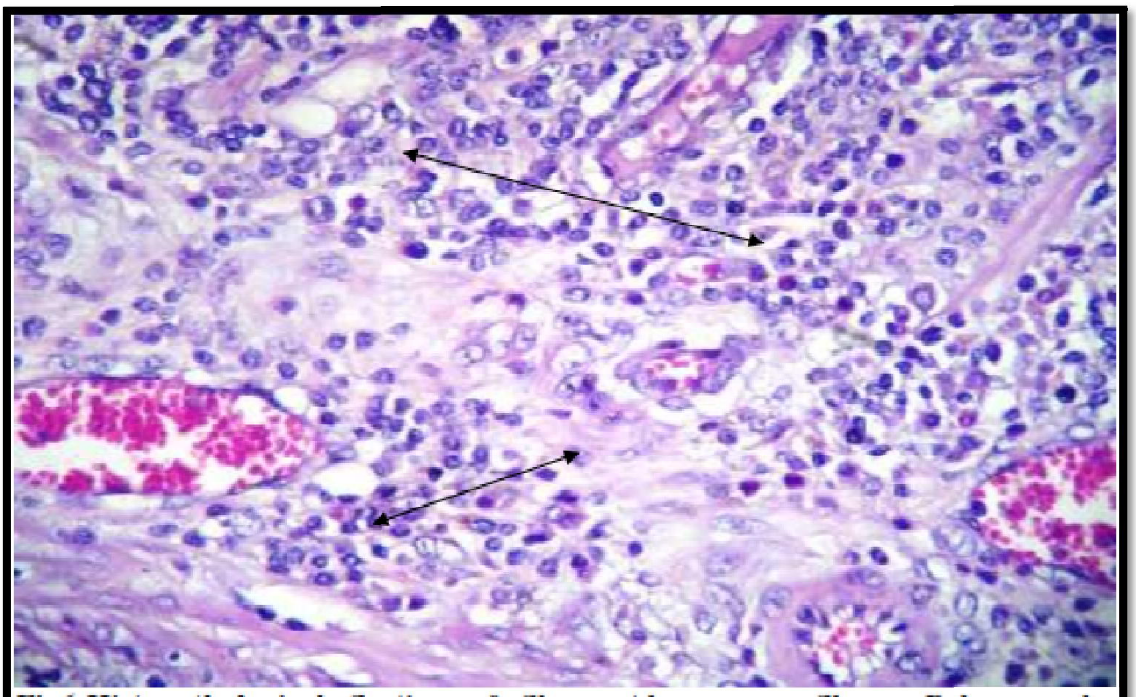

Fig6:Histopathological Section of Sheep Abomasums Shows Poly morpho leuckocetic and Esinophile Infiltration with Glandular Hyperatrophy in submucosa layer ↔ (H&E stain 40X).

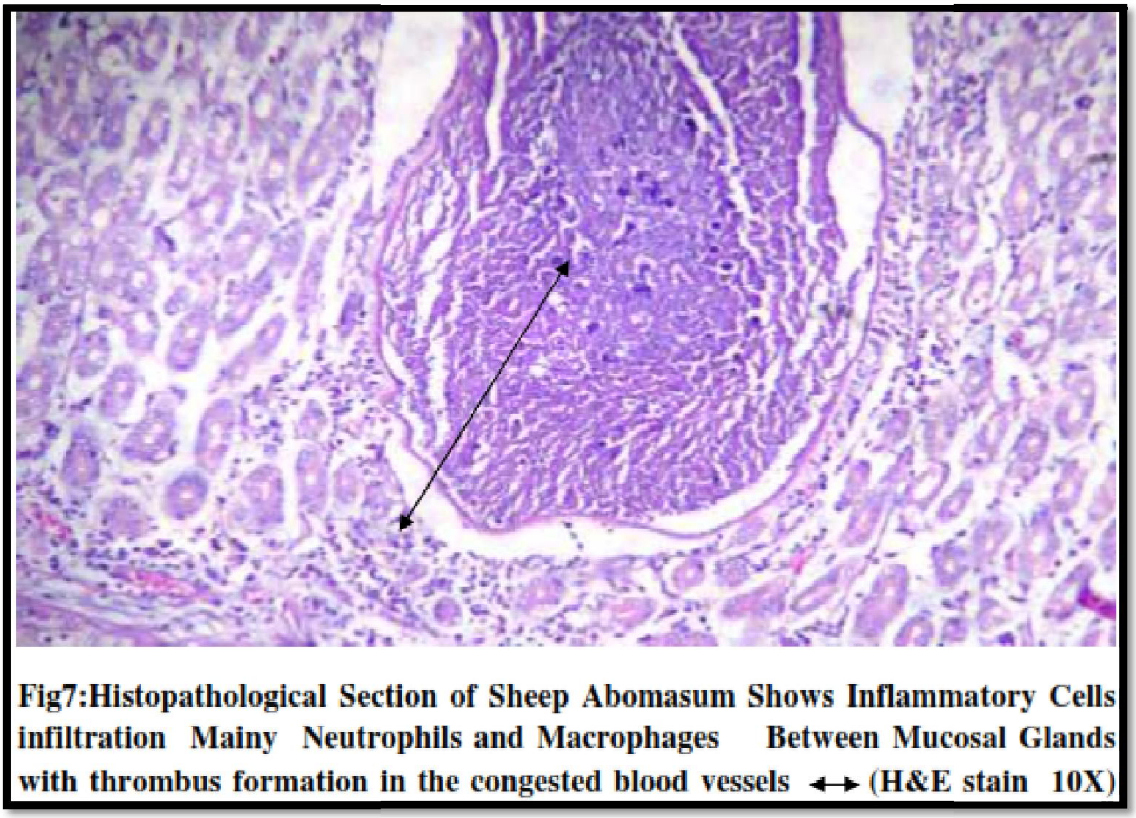

Fig7:Histopathological Section of Sheep Abomasum Shows Inflammatory Cells infiltration Mainy Neutrophils and Macrophages Between Mucosal Glands with thrombus formation in the congested blood vessels ↔ (H&E stain 10X)

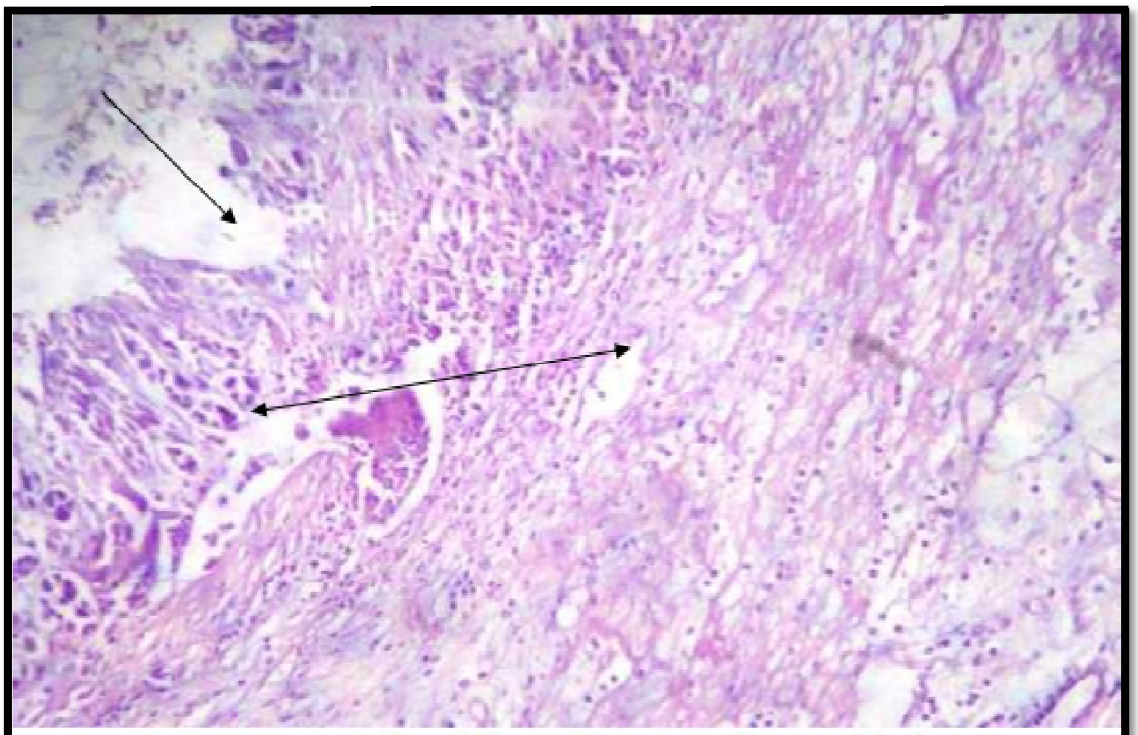

Fig8:Histopathological Section of Sheep Abomasum Shows a Marked Ulceration of Mucosal Epithelial Layers → with sub mucosal edema with fibrin deposit ↔ (H&E stain 10X) .

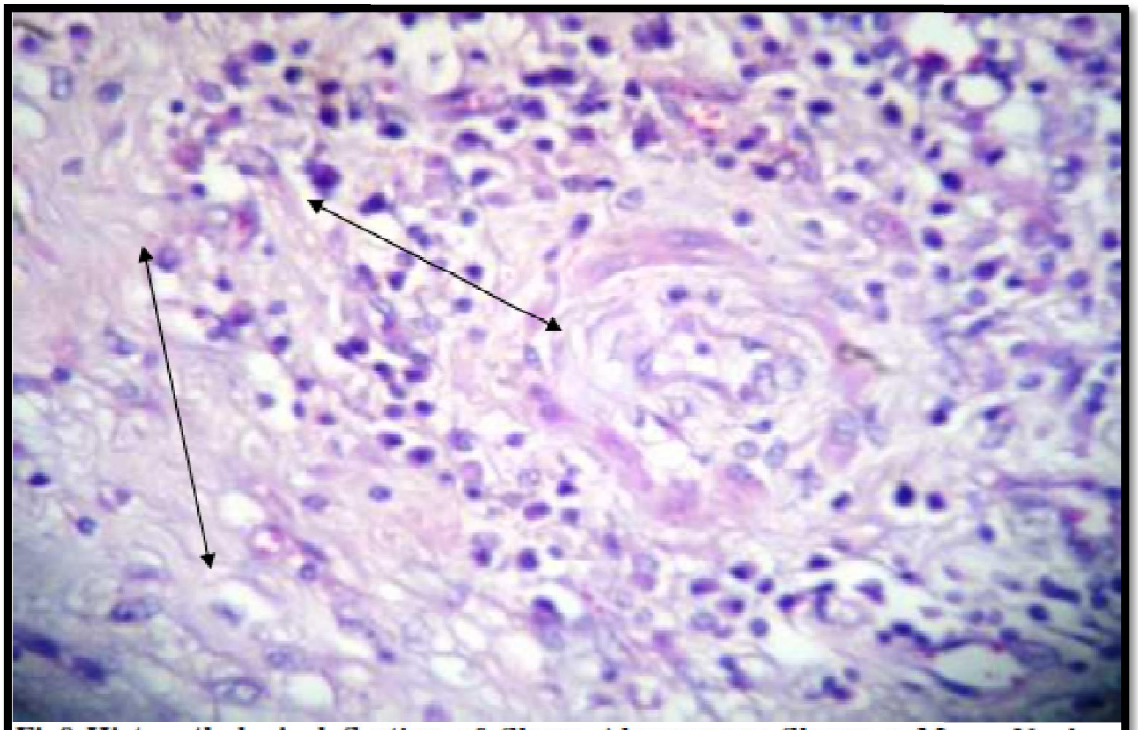

Fig9:Histopathological Section of Sheep Abomasums Shows a Mono Nuclear Cells Infiltrations inaddition to easinophils ,Mainly Around Blood Vessels with Slightly Fibrin Networks Deposition ↔ (H&E stain 40X)