



**An-Najah National University
Department of Veterinary Medicine**

A Survey of Hepatic Lesions in Slaughter Sheep

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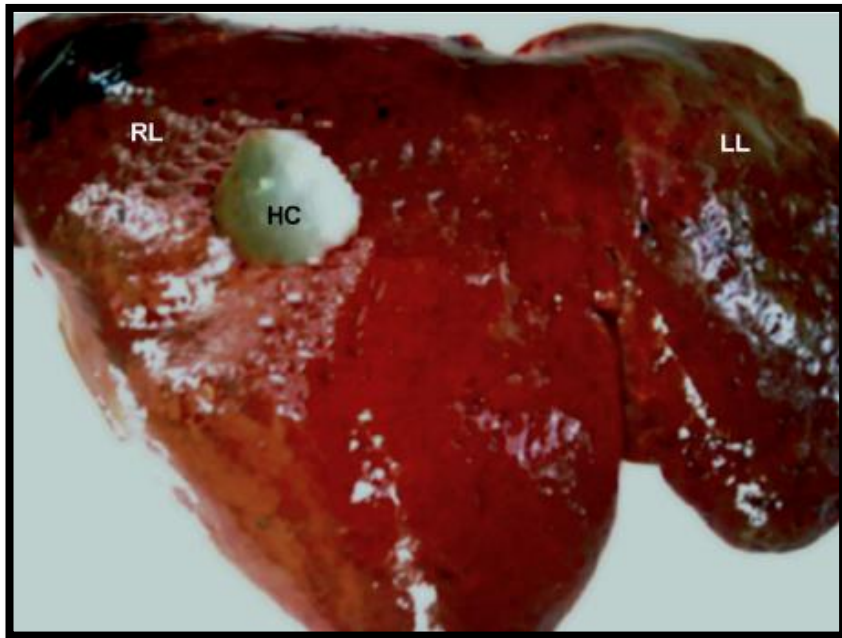
Introduction

- Food animals such as sheep, goats and cattle represent a major source of high-quality food for human (John K. Loosli et al., 1809).
- On the other hand, they serve as a major vehicle for transmission of diseases to human through direct contact with human or through their products (Gianluigi Rossi et al., 2017).
- Therefore, problems concerning meat inspection and hygiene should be reported and documented during both postmortem and meat inspection at slaughterhouses (Ole Alvseike et al., 2018).

Introduction

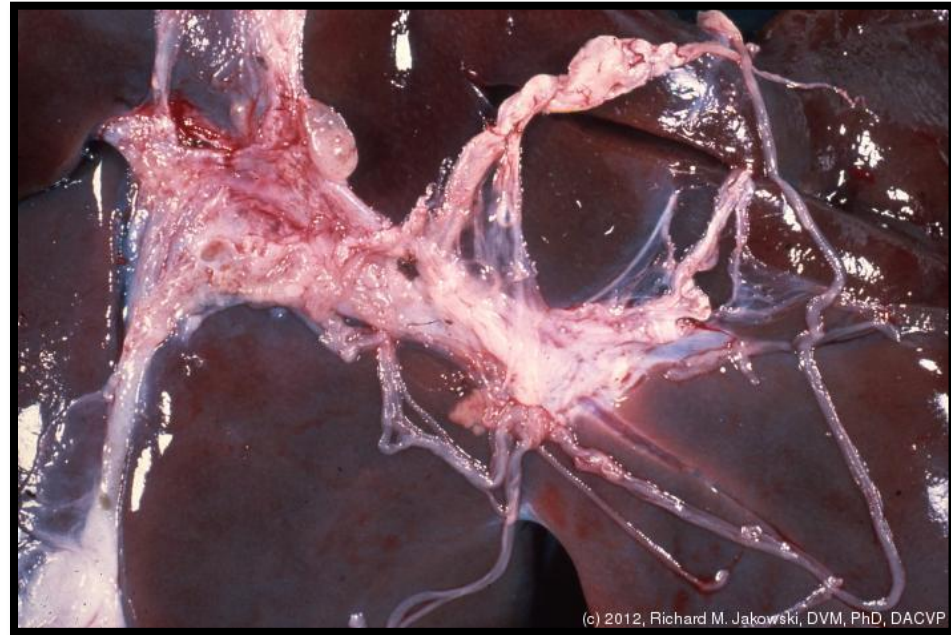
- Monitoring disease and other conditions at slaughter has been recognized as one way of assessing health problems with animal herds (Tjeerd Kimman et al., 2013).
- Liver condemnation has been reported and represent a major percentage of meat condemnation in food animals, most of reported cases were due to parasites such as *Stilesia hepatica*, *fasciola* and *hydatid cyst* (Abdela et al., 2000).

Introduction



A hydatid cyst located near the right lobe of a sheep liver at postmortem examination

Source: https://www.researchgate.net/figure/A-hydatid-cyst-located-near-the-right-lobe-of-a-sheep-liver-at-postmortem-examination_fig9_277688715



(c) 2012, Richard M. Jakowski, DVM, PhD, DACVP

Ovine liver cyst (Stilesia hepatica)

Source:

<http://ocw.tufts.edu/Content/72/imagegallery/1362317/1368958/1376063>

Introduction

- In addition, liver abscesses caused by bacterial infection brought by blood from several sources mainly the portal vein represent another major source of meat condemnation (Tehrani et al., 2000).



Variably sized abscesses are distributed randomly throughout all lobes of the liver.

Source:

https://www.askjpc.org/wsco/wsc_showcase2.php?id=697

Aims

The purpose of this study is to:

- Investigate the occurrence and type of liver lesions in slaughter sheep from slaughter house of Municipality of Nablus city.
- Classify these liver lesions.



Source:
<http://tmfm.net/article/9875>

Materials and methods

- In this study, **27** samples from sheep showing liver lesions were collected regardless of the age or sex.
- Sample were collected from Nablus municipality abattoir.
- Sample were taken directly after slaughter and evisceration and were sent in 10% formalin for histopathological examination.

Materials and methods

- After fixation, the tissue were dehydrated in graded alcohol (70-100%); cleared in xylene, embedded in paraffin wax, sectioned (5 μ m) using microtome, mounted on slides and differentially stained with Hematoxylin & Eosin.
- Other Special stains including Trichrome Stain (Masson) Kit for connective tissue were used.

Materials and methods

- Slides were examined with Olympus light microscope.
- Photomicrographs of representative liver lesions were taken using a (5 mg) camera mounted on a microscope (OMAX Binocular Compound Microscope with Built-in Camera, China)

Results

Table showing the liver lesions found in collected samples

No.	Lesion
# 1	****
# 2	Severe inflammation multifocal coalescing suppurative hepatitis
# 3	Severe inflammation multifocal coalescing suppurative hepatitis
# 4	Multifocal granulomatous hepatitis with moderate infiltration of macrophages and giant cells
# 5	Sever hepatic fibrosis (Cirrhosis) with Severe necrotizing granulomatous hepatitis with calcification
# 6	Multifocal hepatitis (mild to moderate), parasitic migration (hemorrhagic necrotic tracts)
# 7	Diffuse hepatic necrosis (non-inflammatory maybe toxic)
# 8	Hepatitis , fibrosis .

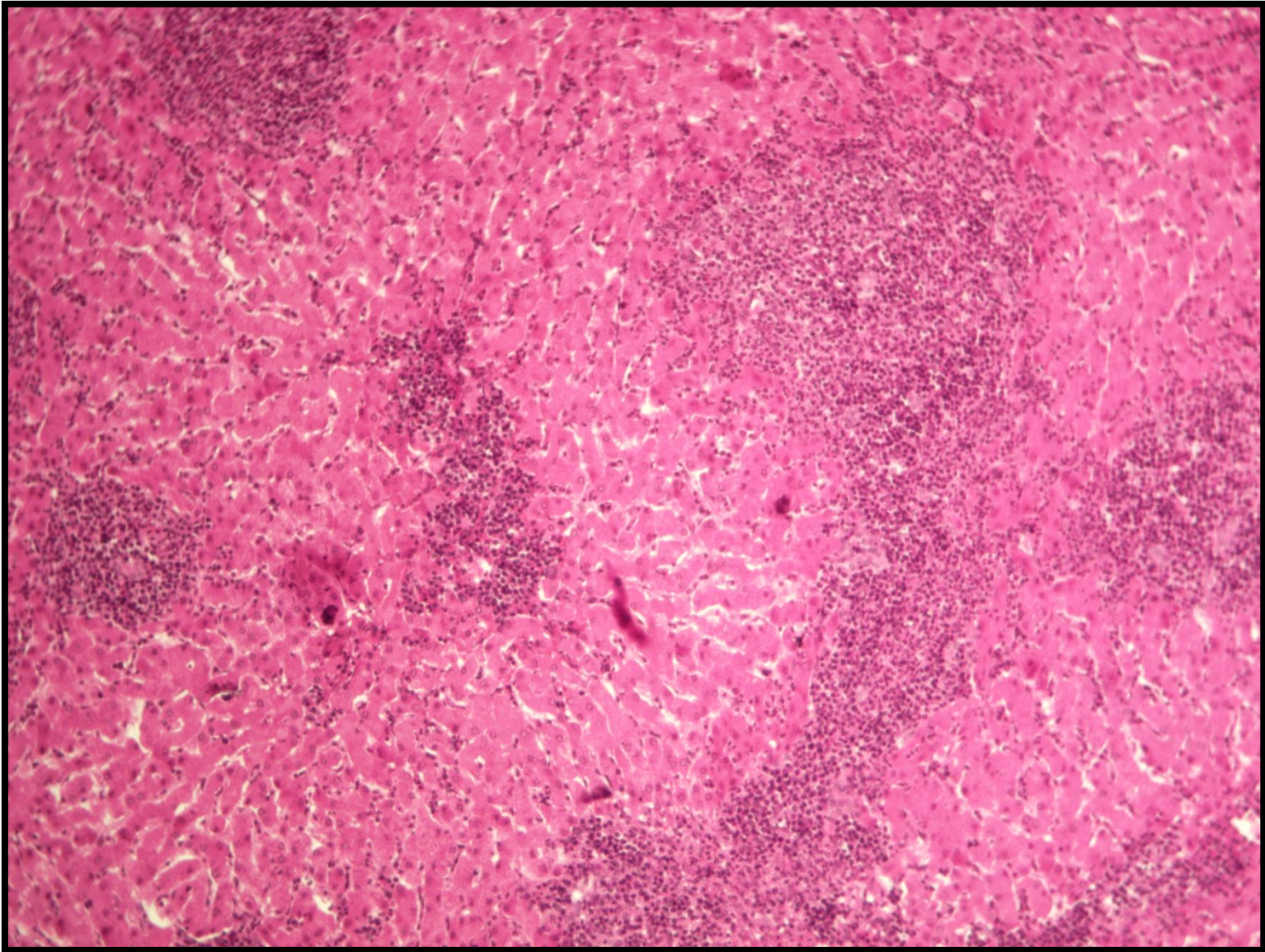
Cont. Table showing the liver lesions found in collected samples

No.	Lesion
# 9	****
# 10	Severe fibrosis around the portal area
# 11	Moderate focal lipidosis with mild multifocal hepatitis
# 12	Hepatic congestion
# 13	Multifocal moderate lympho-histiocytic hepatitis
# 14	Mild multifocal lympho-histiocytic hepatitis
# 15	Moderate focal lipidosis with mild multifocal hepatitis
# 16	Sever fibrosis in the periportal area, multifocal inflammation .
# 17	Normal .

Cont. Table showing the liver lesions found in collected samples

No.	Lesion
# 18	Multifocal moderate inflammation with biliary hyperplasia with coalescing fibrosis
# 19	Giant cells , calcification , two separated cysts .
# 20	****
# 21	Multiple abscesses with connective tissue capsule
# 22	Multiple abscesses with connective tissue capsule
# 23	Multifocal mild to moderate hepatitis with hepatic necrosis
# 24	Cyst , multiple granuloma and calcification
# 25	****
# 26	Multiple abscesses with connective tissue capsule and multifocal hepatitis
# 27	Multiple abscesses with connective tissue capsule

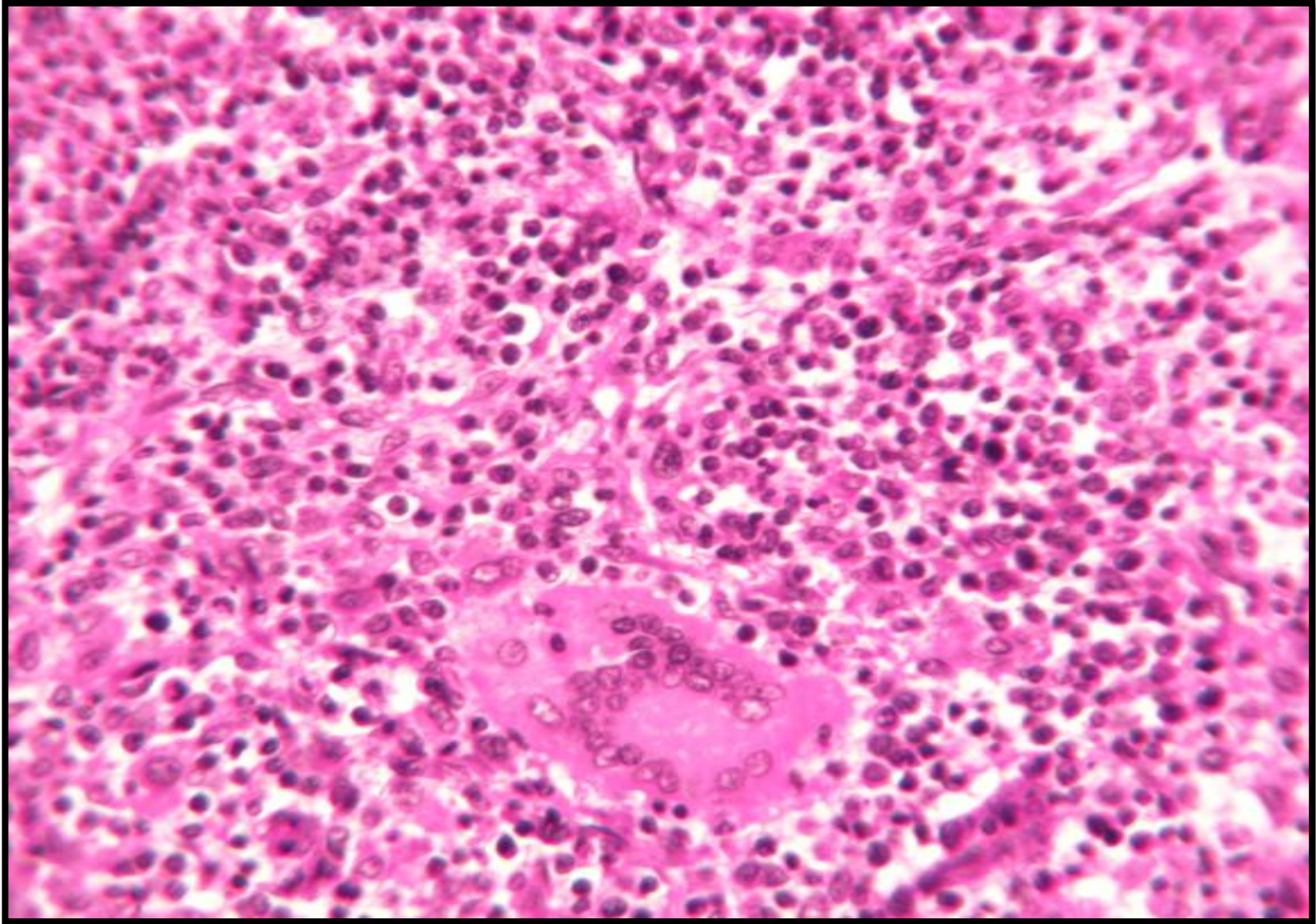
**** = Cases were absent



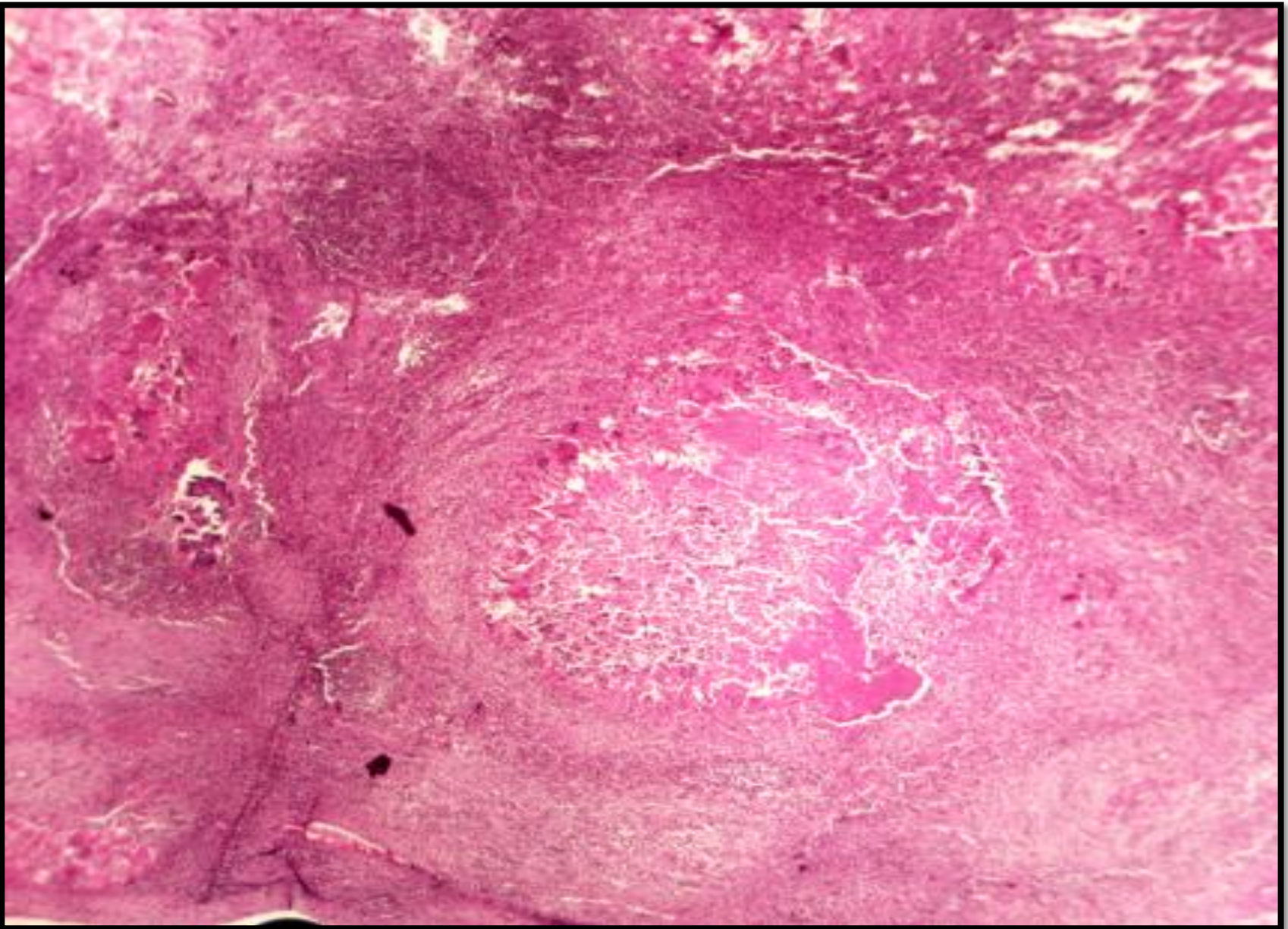
Case # 2: Hepatic parenchyma is infiltrated by moderate numbers of inflammatory cells consisted mainly of neutrophils with some lymphocytes. H&E stain.



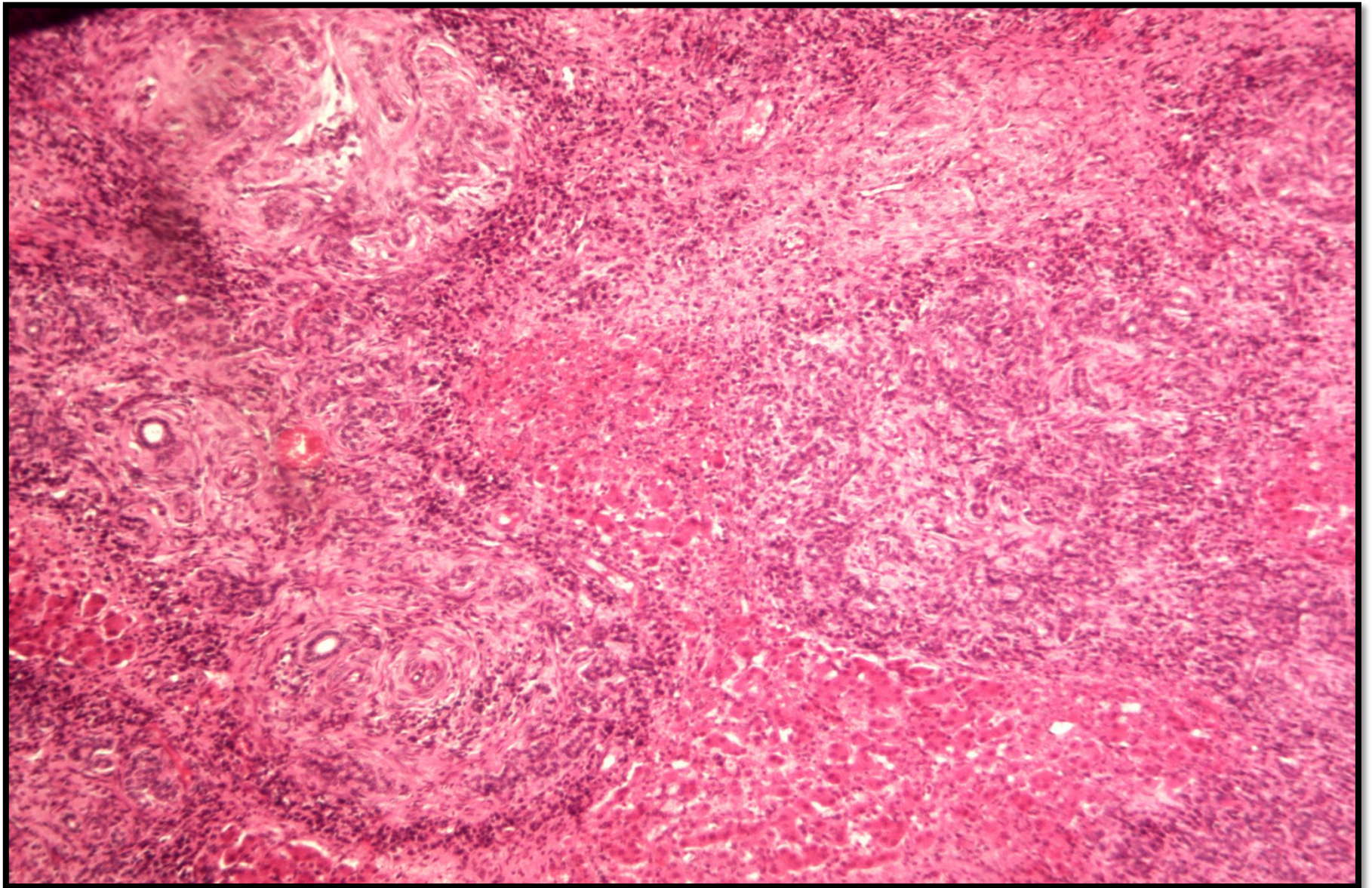
Case # 4: Granulomatous lesion in the liver of a sheep.



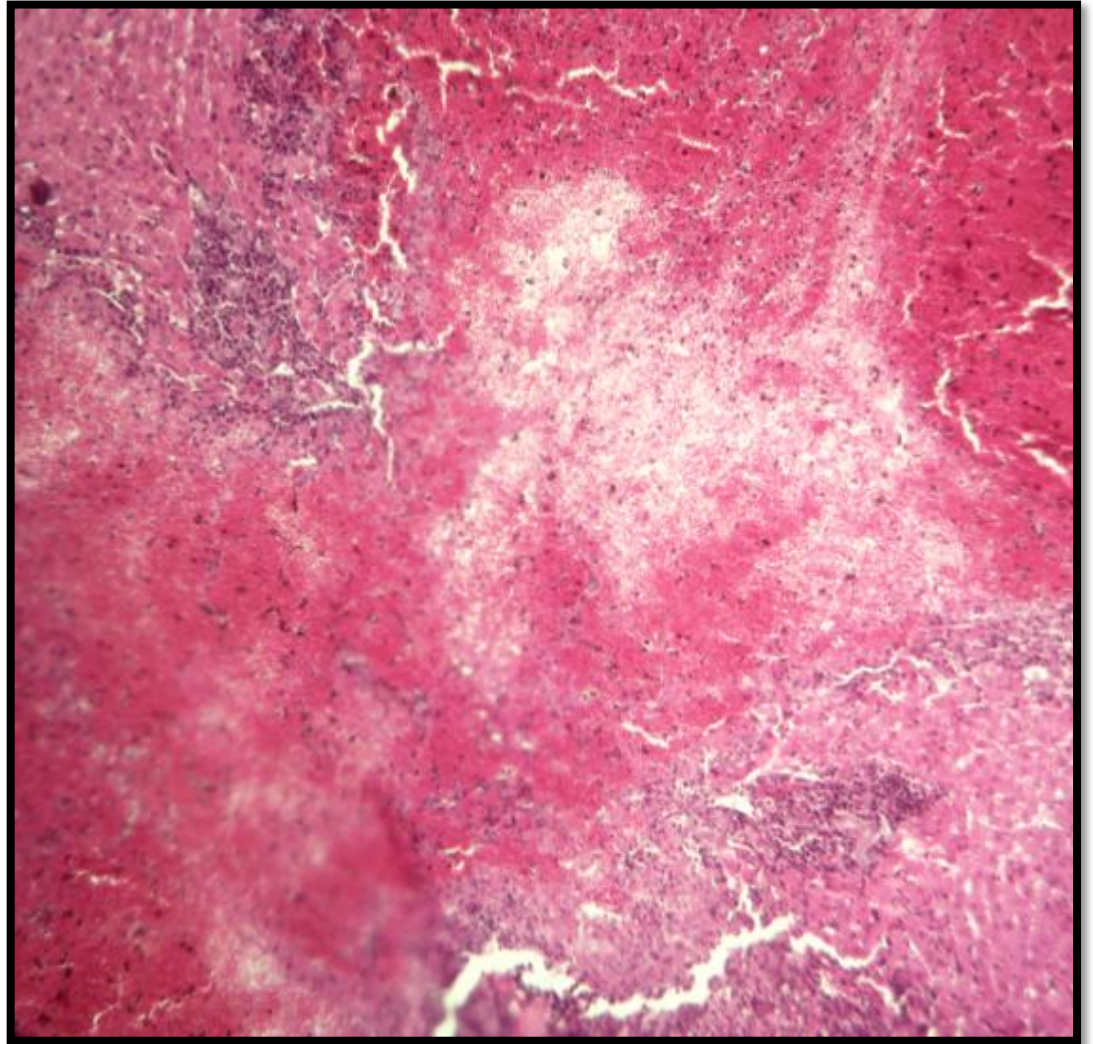
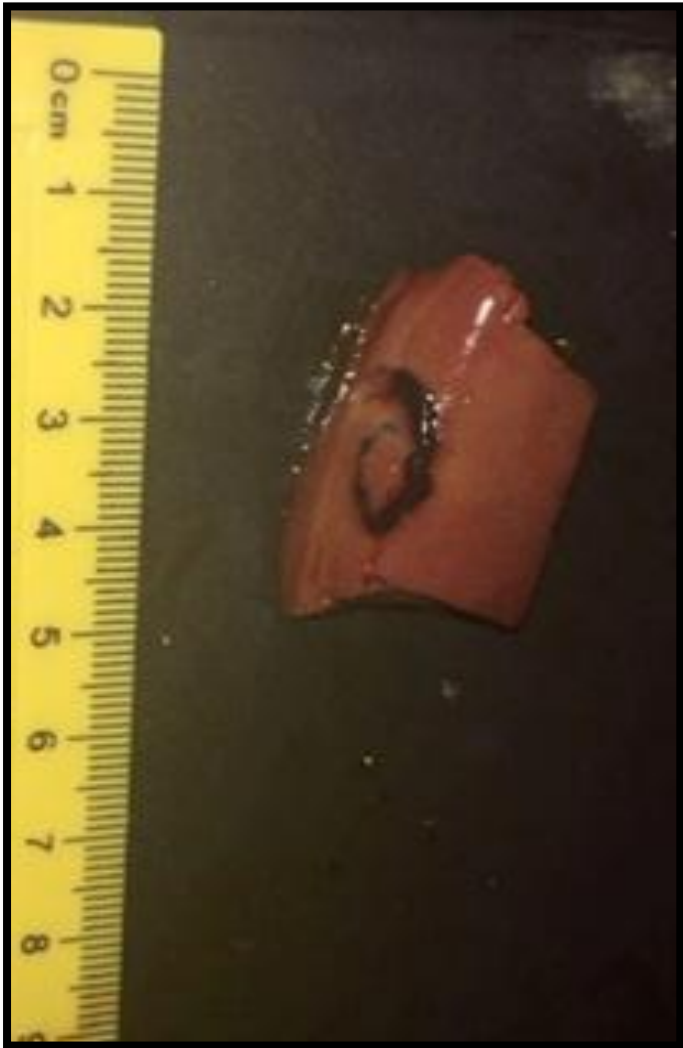
Case # 4: Hepatic parenchyma is expanded and replaced by high numbers of macrophages, lymphocytes and Langhans-giant macrophages. H&E stain.



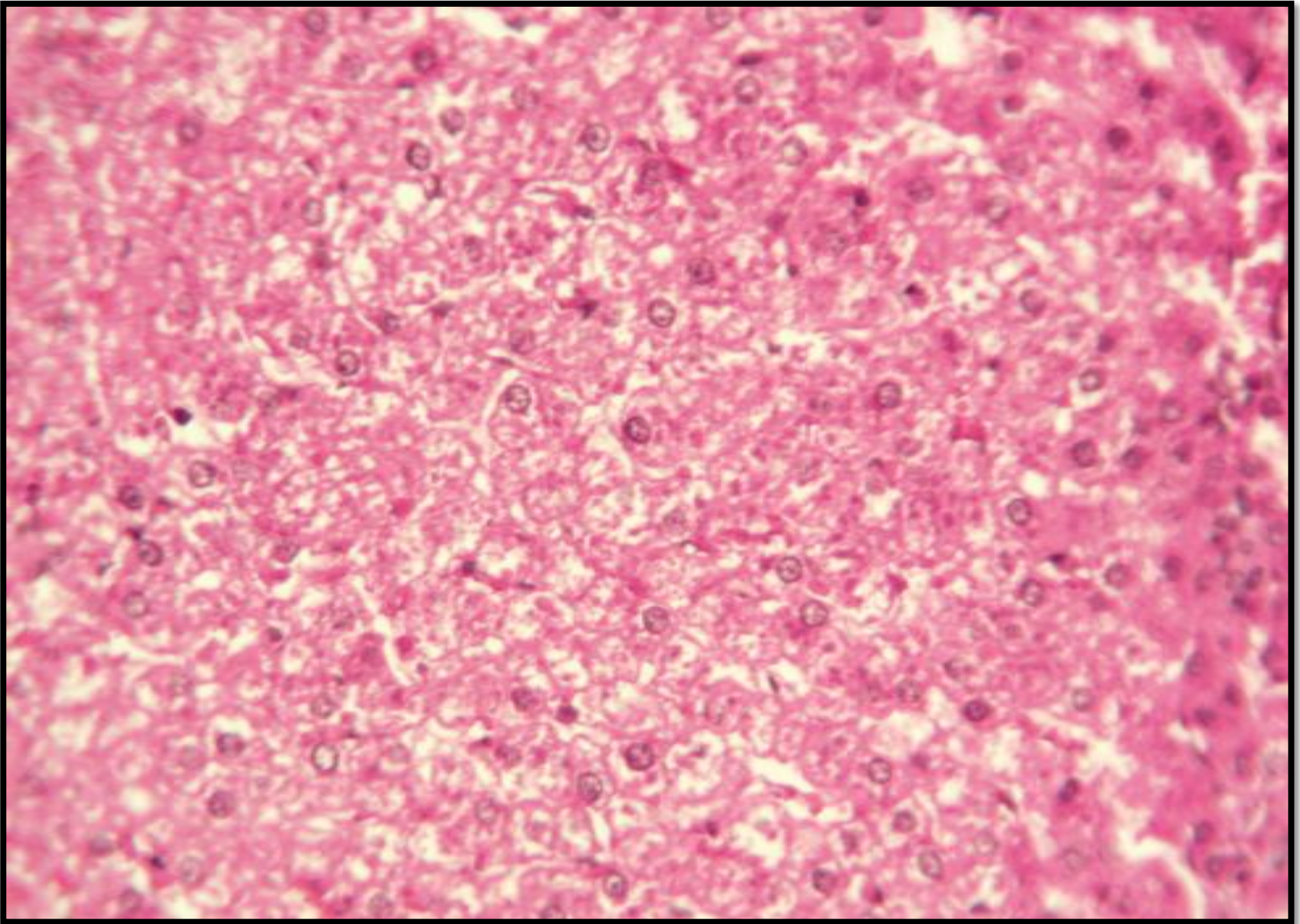
Case # 5: Hepatic parenchyma is replaced by high amount of fibrous connective tissue with small focal areas of remaining viable hepatocytes (liver cirrhosis). H&E stain.



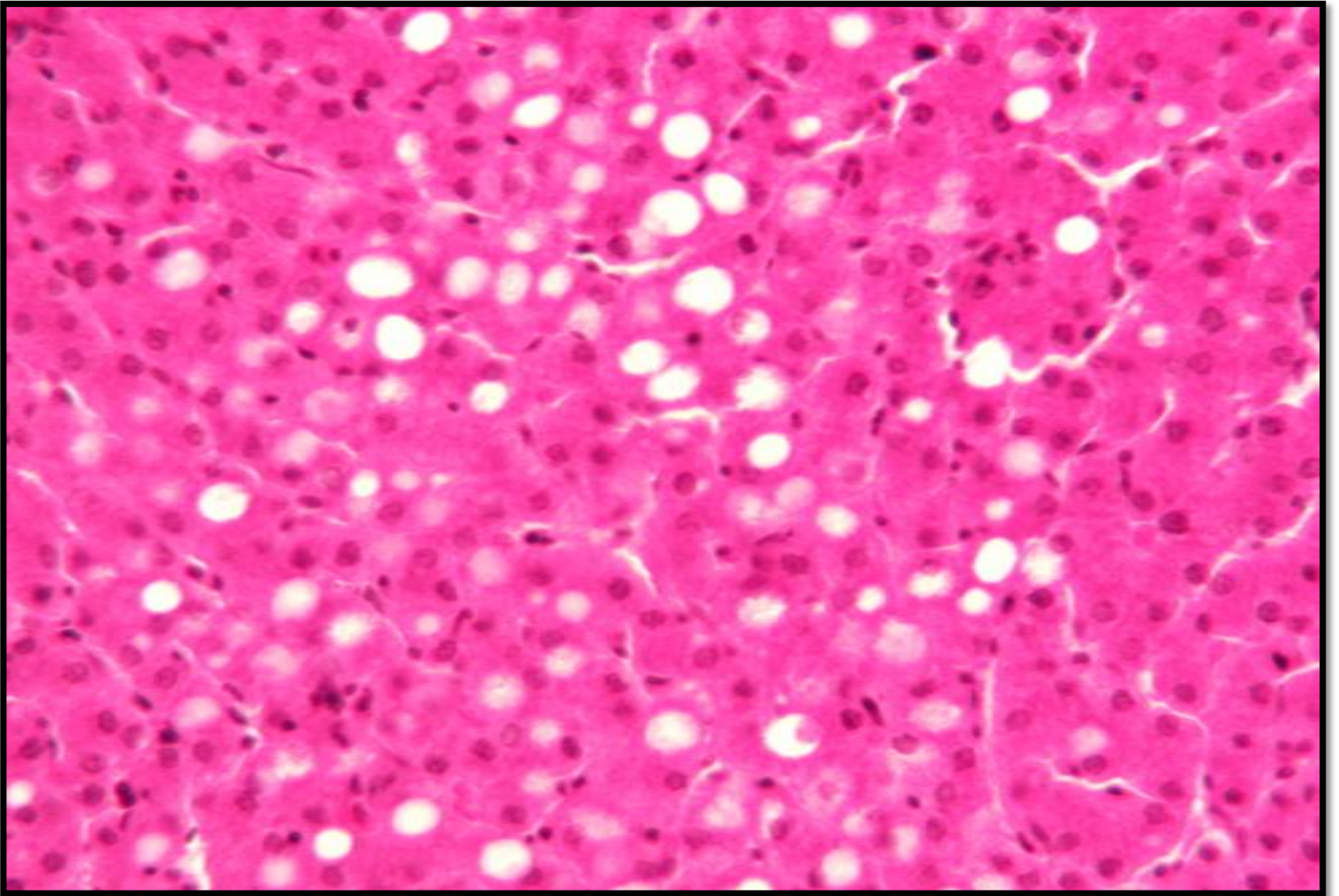
Case #18: The periportal areas are severely expanded by fibrosis which is bridging along with severe biliary hyperplasia and infiltration with moderate inflammatory cells - suspected for toxic plant. H&E stain.



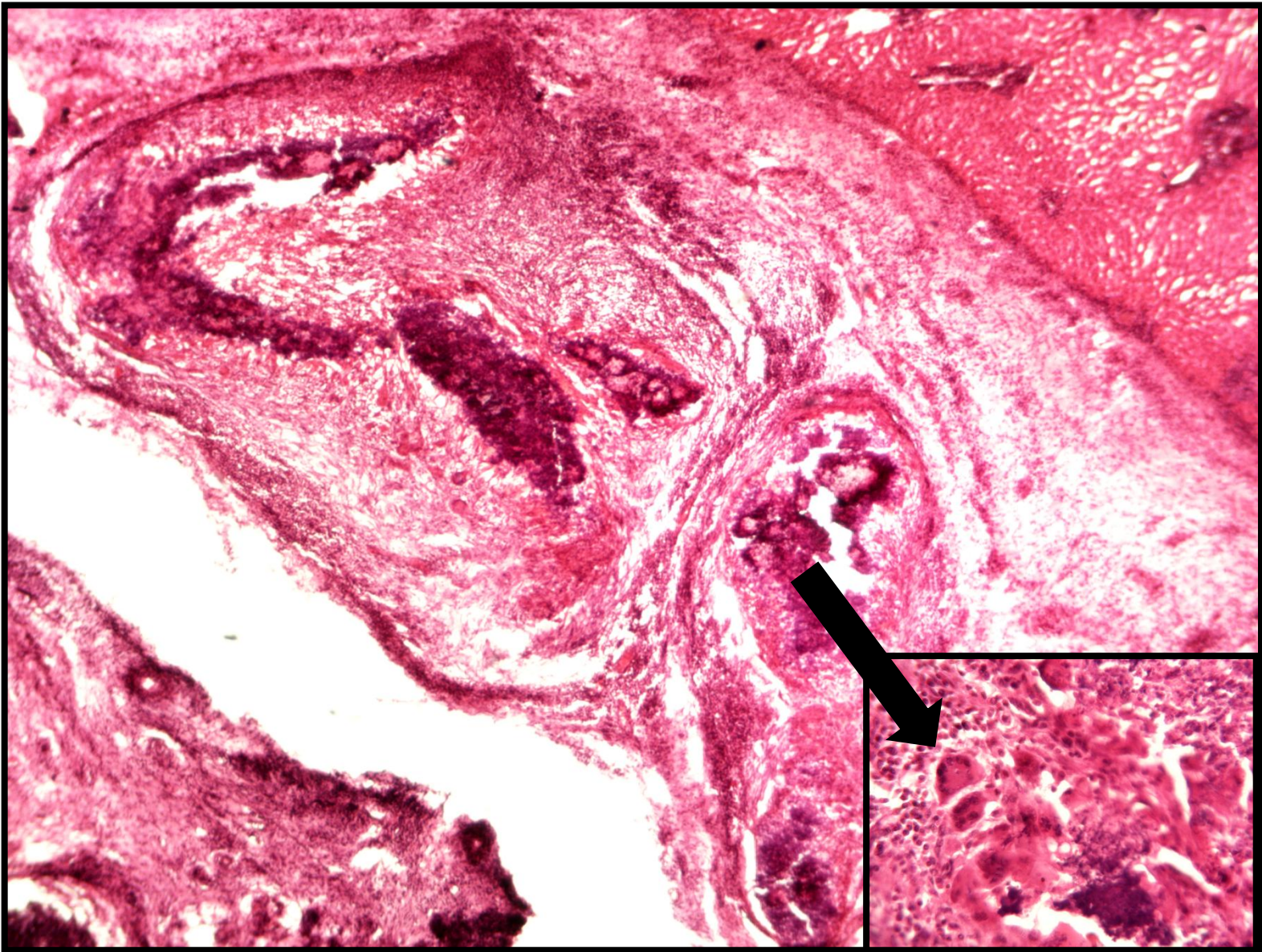
Case # 6: Hemorrhagic tracts caused by *Taenia hydatigena* surrounded by diffuse hemorrhage with large numbers of erythrocytes and few neutrophils. H&E stain.



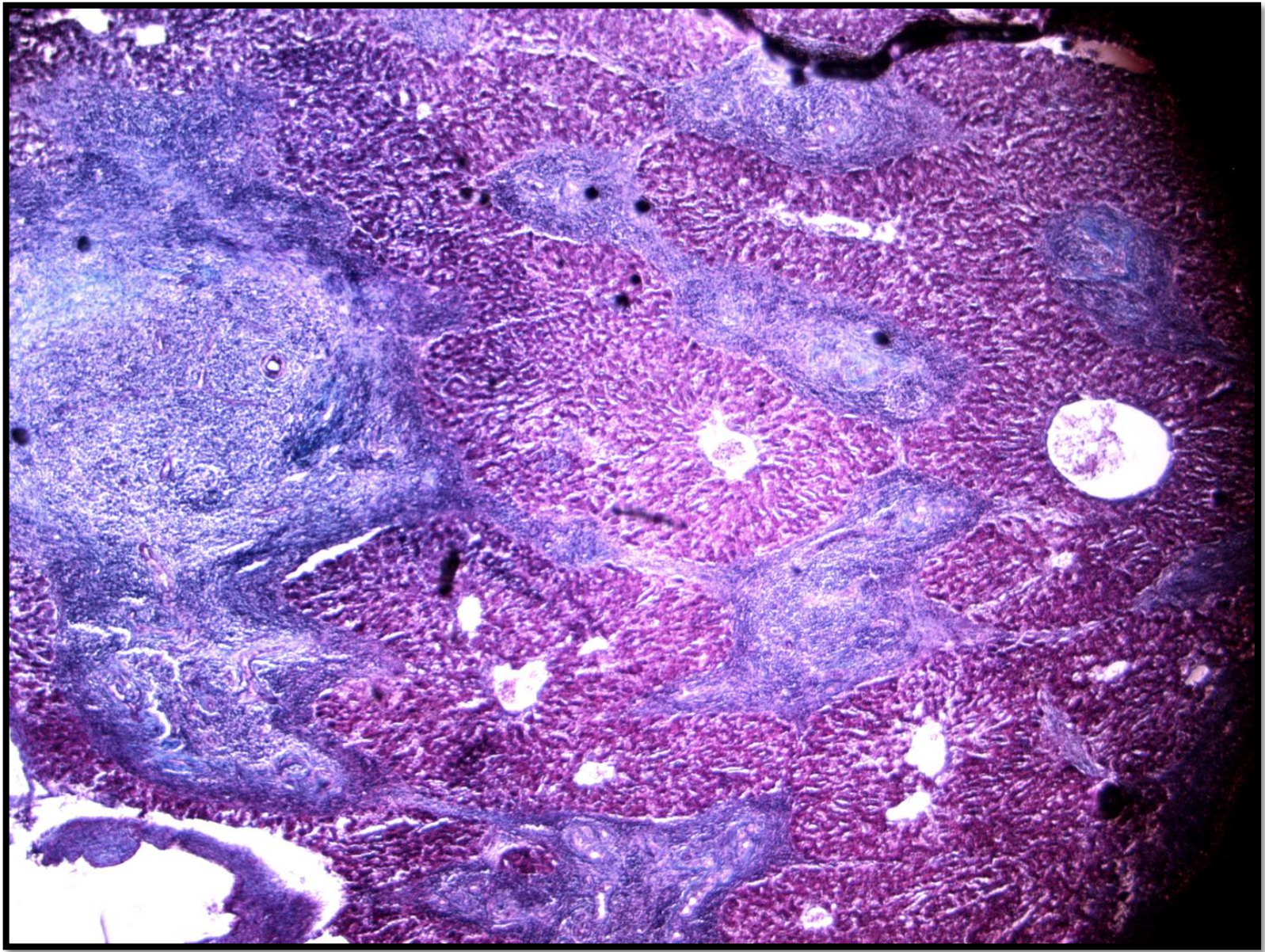
Case # 7: Diffuse hepatocellular degeneration and necrosis (non-inflammatory suspected for toxic cause). H&E stain.



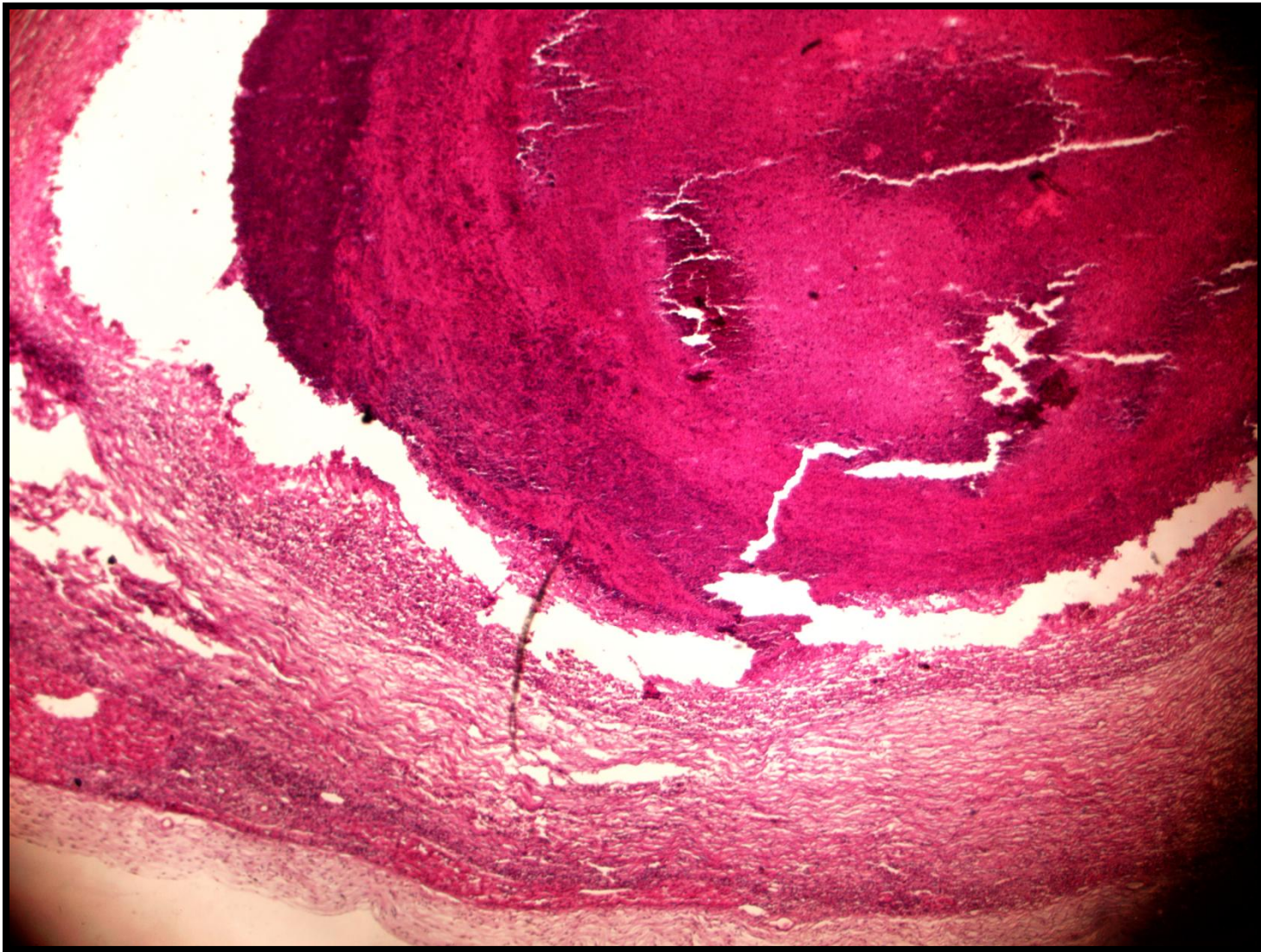
Case # 15: Moderate areas of focal hepatic lipidosis. H&E stain.



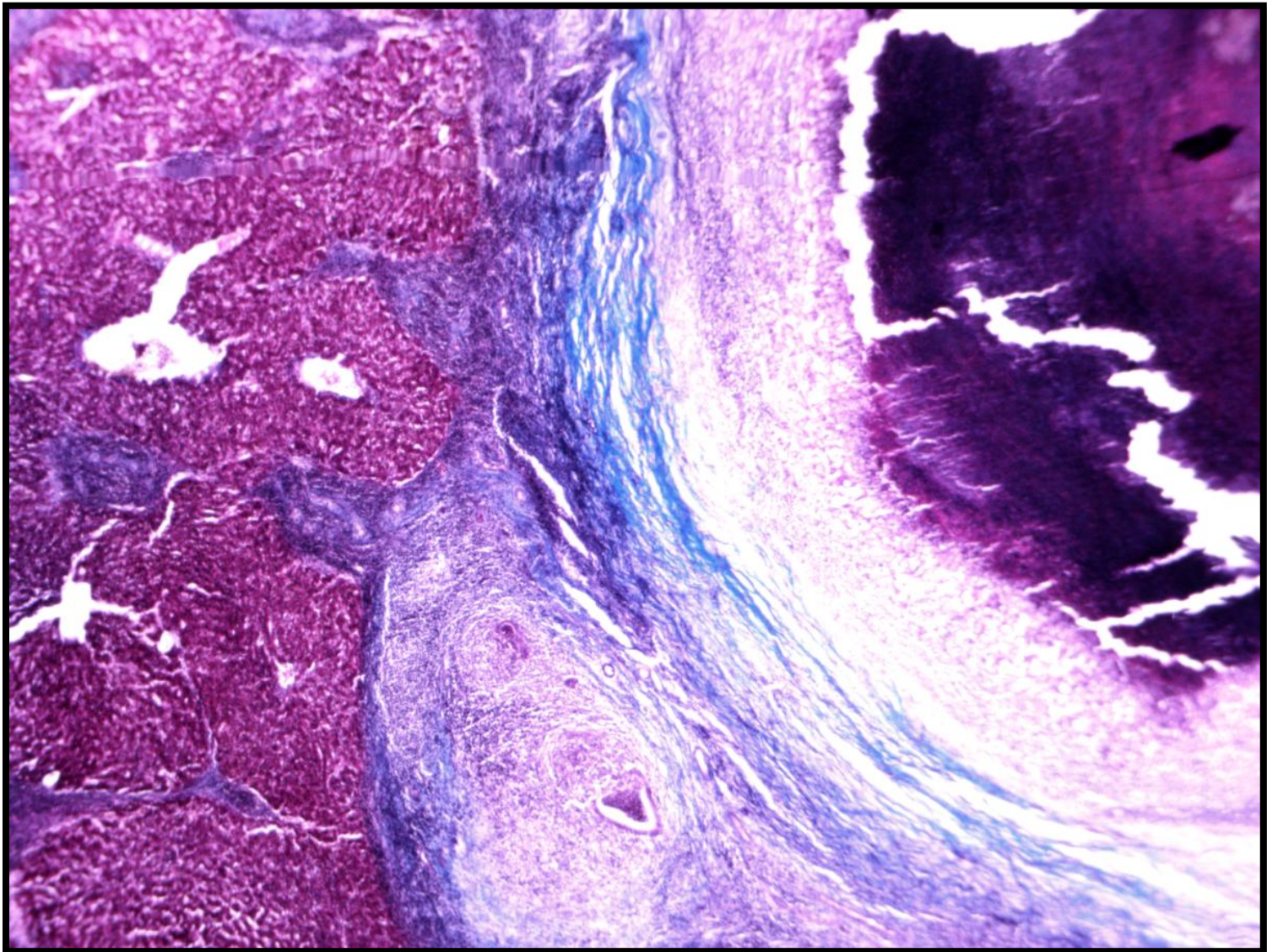
Case # 19: The liver parenchyma is distorted by different sizes cysts which is surrounded by chronic inflammatory cells infiltrated by foreign body giant cells and areas of calcification. Inset: areas of calcification within the center of granuloma. H&E stain.



Case # 22: The liver is showing severe diffuse bridging fibrosis of the portal area. Masson Trichrome stain.



Case # 21: Multifocal abscesses that compress hepatic parenchyma and distort hepatic lobules. The abscess is composed of large central necrotic cell debris infiltrated by neutrophils and surrounded by a thick fibrous capsule. H&E stain.



Case # 21: Special stain showing a thick fibrous capsule surrounding the liver abscess. Masson Trichrome stain

Discussion

- Meat inspection is commonly perceived as the sanitary control of slaughter animals and meat.
- The aim of meat inspection is to provide safe and wholesome meat for human consumption (Herenda et al., 1994).
- The ante mortem and post mortem inspections were conducted in the abattoir for the purpose of screening and removing animal products with pathological lesions which were unsafe for human consumption and having poor aesthetic value.

Discussion

- It was indicated that meat inspection assist in monitoring diseases in the national herd and flock by providing feedback information to the veterinary service to control or eradicate diseases and to produce wholesome products and to protect public from zoonotic hazards (Gracey,et al., 1986).
- The finding of this study show the prevalence of liver diseases in sheep slaughtered at Nablus municipality abattoir.
- The observed frequently of hydatid cyst, multifocal abscesses, hepatic necrosis, hepatic hemorrhage, fatty change, liver portal fibrosis at slaughter house should be considered as a risk for public health.

Future work

- In future research, more research is needed to apply and test the effect of feeding type and program on the occurrence of liver lesions in general, well as future studies could apply culture and sensitivity test for those lesions.

Acknowledgement

- 1- Our families.
- 2- Dr. Adnan Fayyad.
- 3- Dr. bassam Abo-shanab
- 4- Laboratory staff.
- 5- Nablus municipality abattoir.
- 6-Department of veterinary medicine at An-Najah National University.



Thank You!

References

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