

GENERAL PATHOLOGY

L-11 IRREVERSIBLE INJURY

FAT + ZENKER'S + FIBRINOID + OUTCOME

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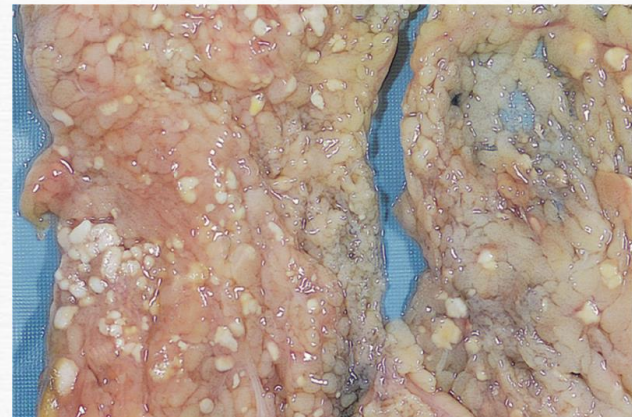
■ Fat Necrosis

- necrosis of fat due to action of enzymes followed by formation of complexes with **calcium** or other ions (which appear as amorphous, granular deposits)
- Formation of white chalky areas
- Injury to Pancreas (Traumatic or pancreatitis)
 - Pancreatic enzymes
 - Liquefy membranes and lipase split triglyceride to FA + Glycerol

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- Lipases break down triglycerides and release free fatty acids which form soaps when they combine with cations such as Ca^{++} , Na^{+} etc.
 - FA + Ca Soap (Purple)
 - FA + Na Soap (Bluish)
 - FA + K Soap (Pinkish)
- Occurs in mammary tissue, pancreas, other abdominal areas
- focal outlines of necrotic fat cells surrounded by inflammation

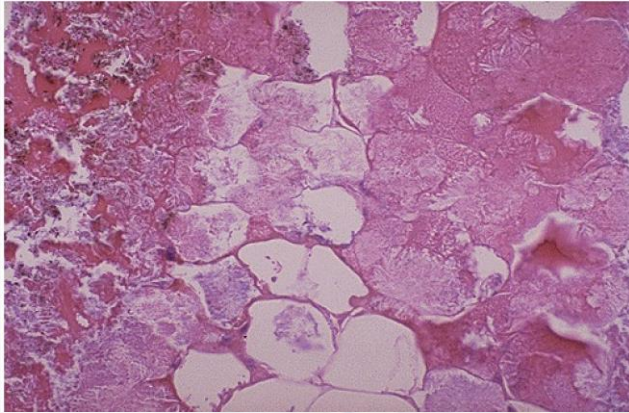
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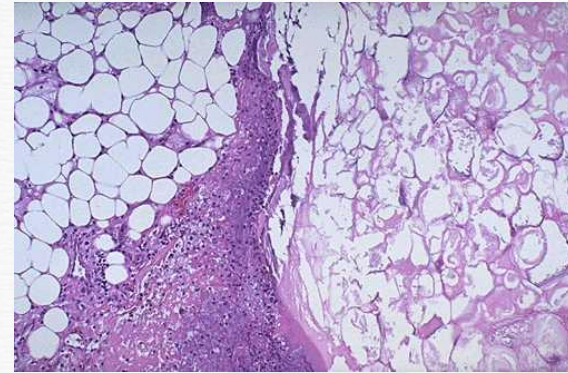
Fat necrosis in acute pancreatitis. The areas of white chalky deposits represent foci of fat necrosis with calcium soap formation (saponification) at sites of lipid breakdown in the mesentery

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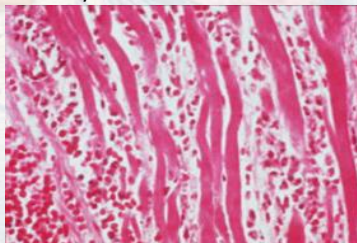
Fat Necrosis - Peritoneum.



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▪ Zenker's necrosis (Zenker's degeneration)

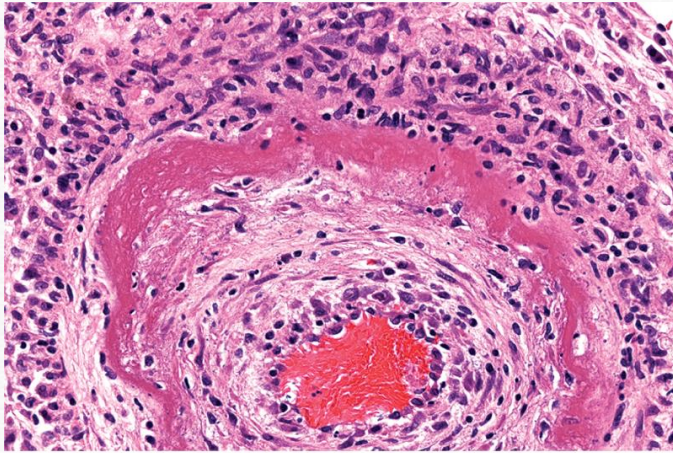
- Necrosis in Muscles
- Homogenous appearance of muscles, loss of cross striations
- Grossly, area appear white or pale, shiny and swollen
- Causes
 - white muscle disease (vitamin E deficiency)
 - Chemical toxicity -- Mercury



Fibrinoid Necrosis

- is a special form of necrosis usually seen in immune reactions **involving blood vessels**.
- This pattern of necrosis typically occurs when complexes of antigens and antibodies are deposited in the walls of arteries.
- Deposits of these "immune complexes," together with fibrin that has leaked out of vessels, result in a bright pink and amorphous appearance in H&E stains, called "fibrinoid" (fibrin-like)

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The wall of the artery shows a circumferential bright pink area of necrosis with protein deposition and inflammation (dark nuclei of neutrophils).

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OUTCOME OF NECROSIS

- **Liquefaction** by autolysis and heterolysis with eventual removal of fluid through blood and/or lymphatics.
- Liquefaction with eventual formation of **cyst** (cavity containing fluid) which maybe due to slow removal of the fluid.
- Liquefaction with formation of an **abscess** --- pyogenic bacteria
- **Encapsulation** without liquefaction is another possible outcome. Tuberculosis is a good example.

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OUTCOME OF NECROSIS

- **Desquamation** or sloughing -- skin, tubular organs
- Healing by formation of **scar** tissue
- The **calcification** of the necrotic area.
- Development of **gangrene** is another possible outcome
- **Atrophy** of the organ with loss of its.
- **Regeneration**, i.e., the formation of new parenchymal cells

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QUESTIONS
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