

#MADEEASY



**GRANULOMATOUS
INFLAMMATION**



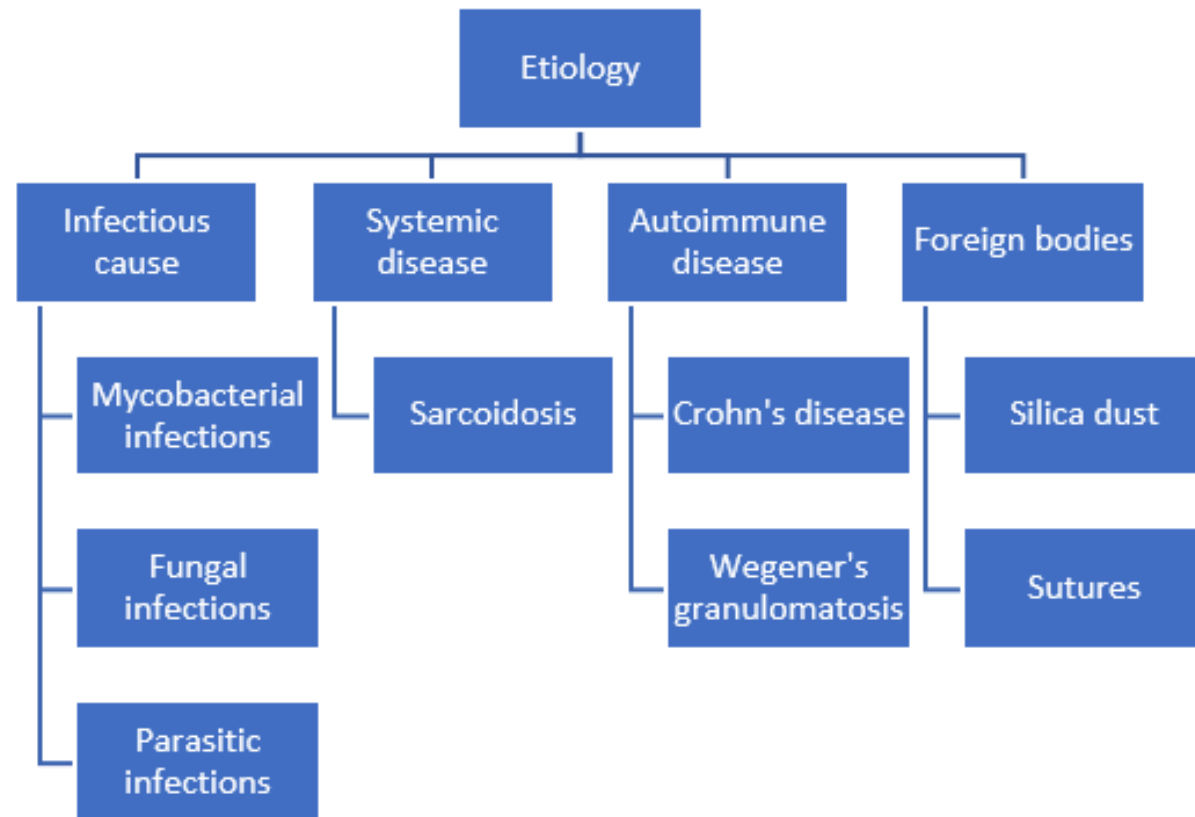


What is Granulomatous Inflammation?

- **Granulomatous inflammation is a specific form of chronic inflammation.**
- **It is characterized by formation of compact aggregates of different immune cells.**
- **This aggregate is called a granuloma.**
- **Imagine granulomas as chocolate chip cookies!**
- **The dough that we mix for the choco chip cookies are the macrophages, and the chocolate chips are the giant cells. If you cover the cookie ball with chocolate powder then those are the lymphocytes.**
- **Mr. TB likes chocolate chip cookies with gooey chocolate centre.**
- **Mr sarcoidosis likes hard cookies. He puts sprinkles in his cookies which are star shaped (asteroid bodies) and long (Schaumann bodies).**



Can you tell the
causes?



How does it look under a microscope?



Granuloma involves an organized collection of cells like

- **Macrophage: Activated, forming Epithelioid cells.**
- **Lymphocytes: surrounds the macrophages like a cuff.**
- **Plasma cells**
- **Eosinophils: present in fungal granulomas.**
- **Fibroblast: deposit collagen and cause fibrosis.**

NOTE:

Epithelioid cells are basically large, polygonal macrophages activated by the antigen.

Multinucleated giant cells: these are formed by fusion of multiple macrophages.

Central Necrosis: There can be 2 types of granulomas, based on the presence or absence of necrotic material in the centre of a granuloma.

Caseating granuloma

- **Characterized by presence of central caseous necrosis (cheese like material).**
- **Also known as soft granuloma.**
- **Seen in Tuberculosis.**

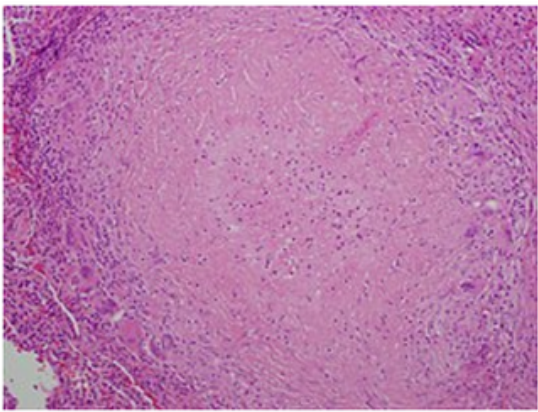




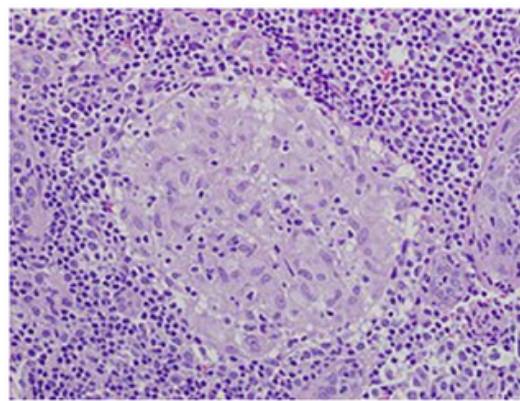
How does it look under a microscope?

Non caseating granuloma

- **No central necrosis present, only a collection of cells.**
- **Also known as hard granuloma.**
- **Seen in Sarcoidosis.**



Caseating Granuloma



Non Caseating Granuloma





Can you list the related diseases?

Clinical Significance

- ***Granulomatous inflammatory diseases include:***
- ***Tuberculosis***
- ***Leprosy***
- ***Histoplasmosis and Cryptococcosis***
- ***Schistosomiasis***
- ***Sarcoidosis***
- ***Crohn's disease***
- ***Rheumatoid arthritis***
- ***Granulomas associated with vasculitis***
- ***Foreign body granuloma***

