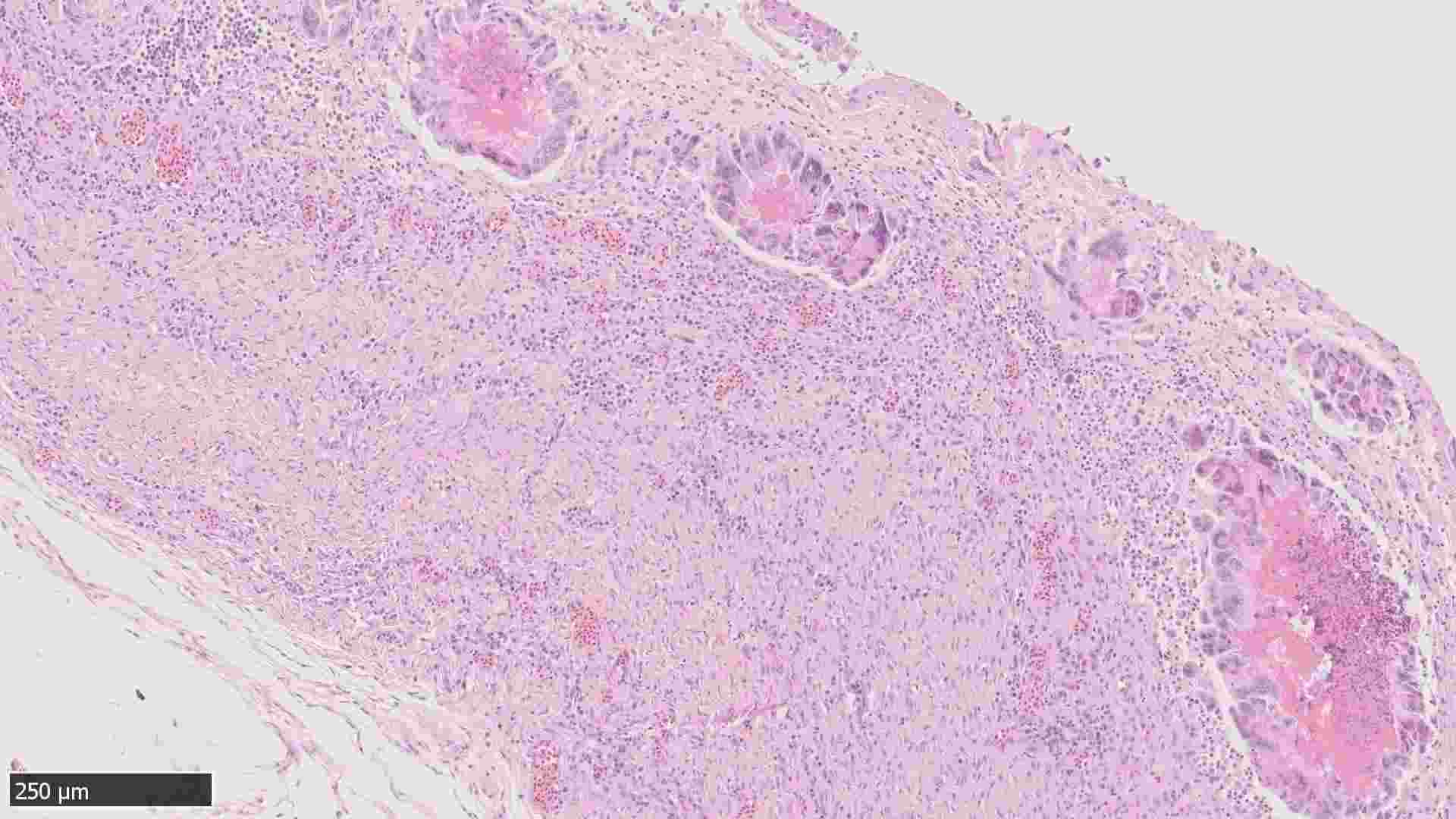
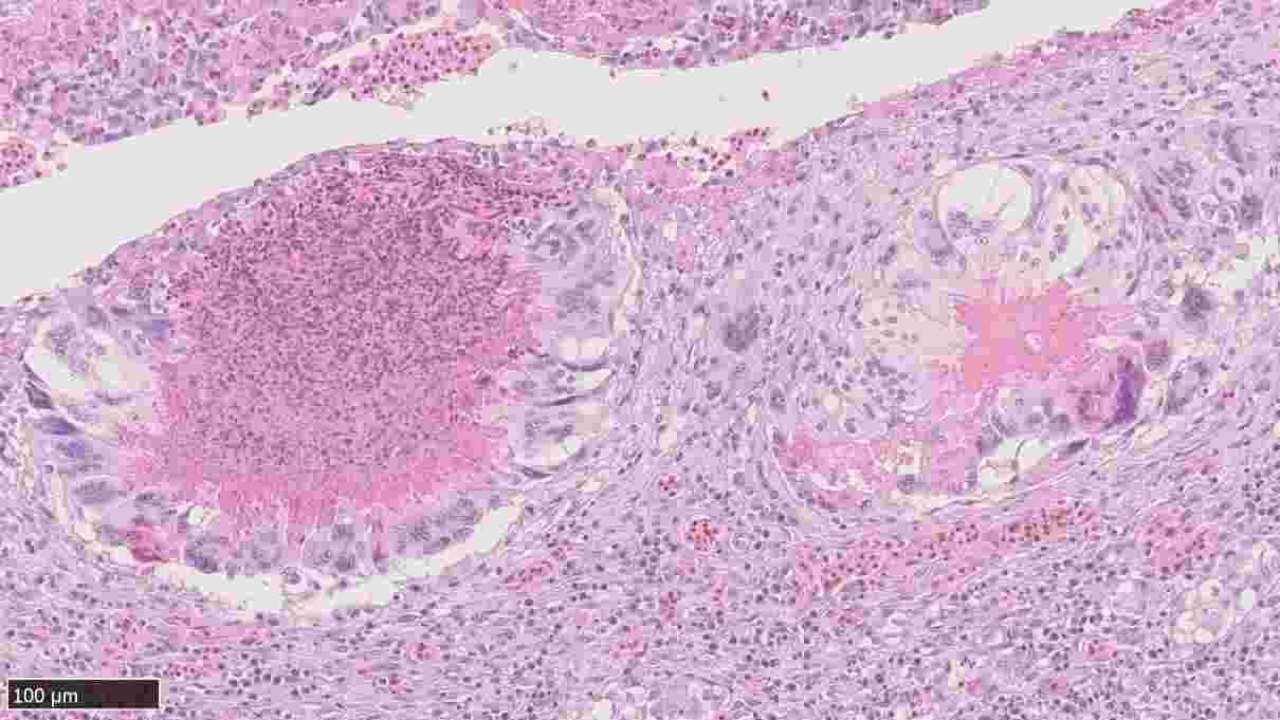
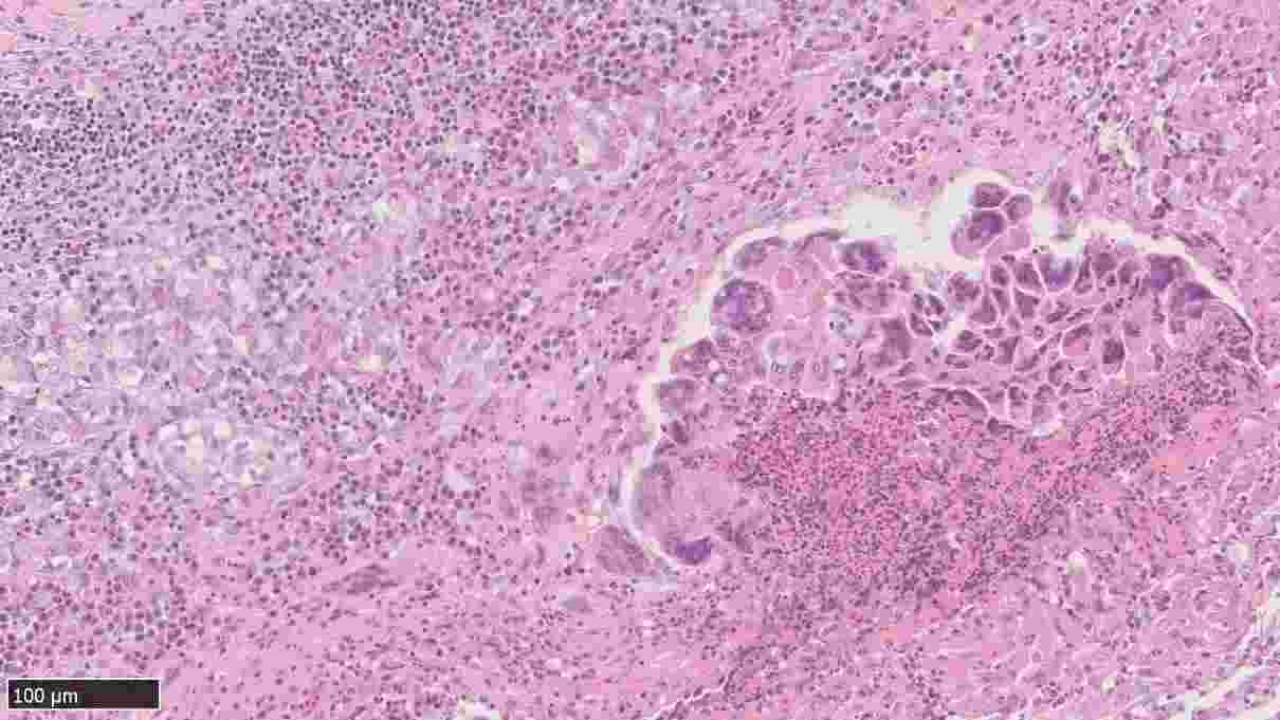
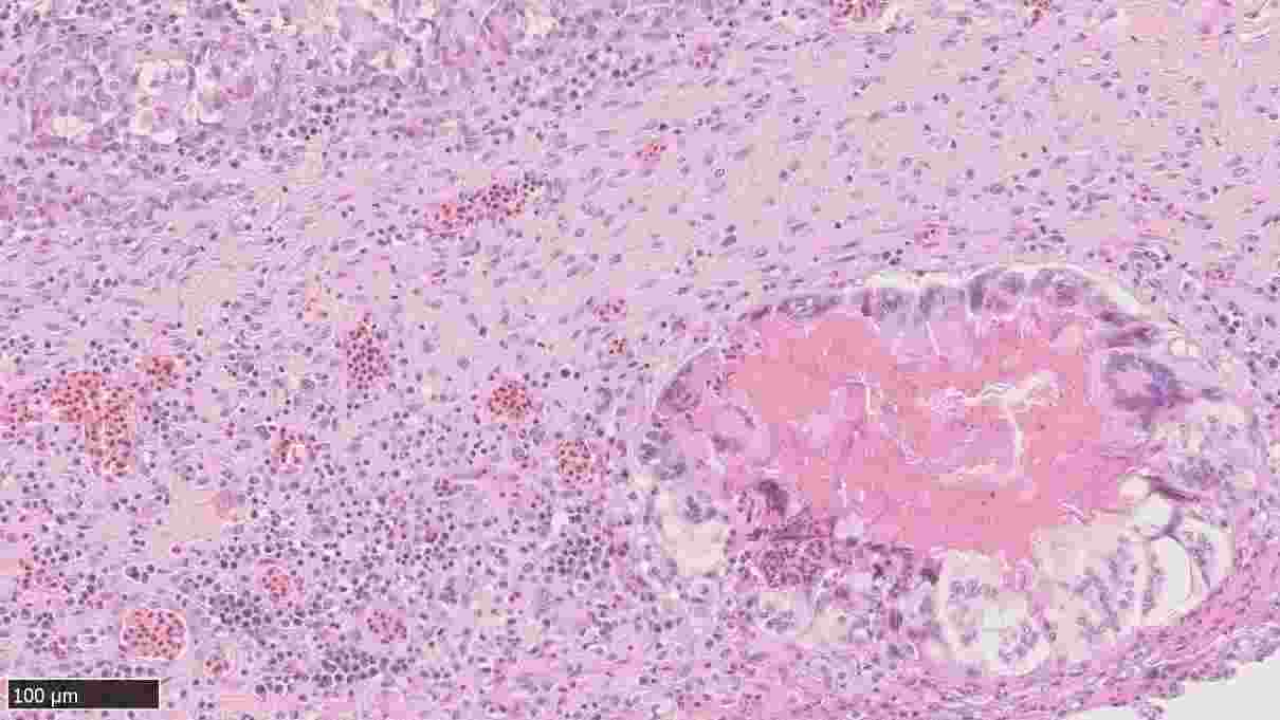


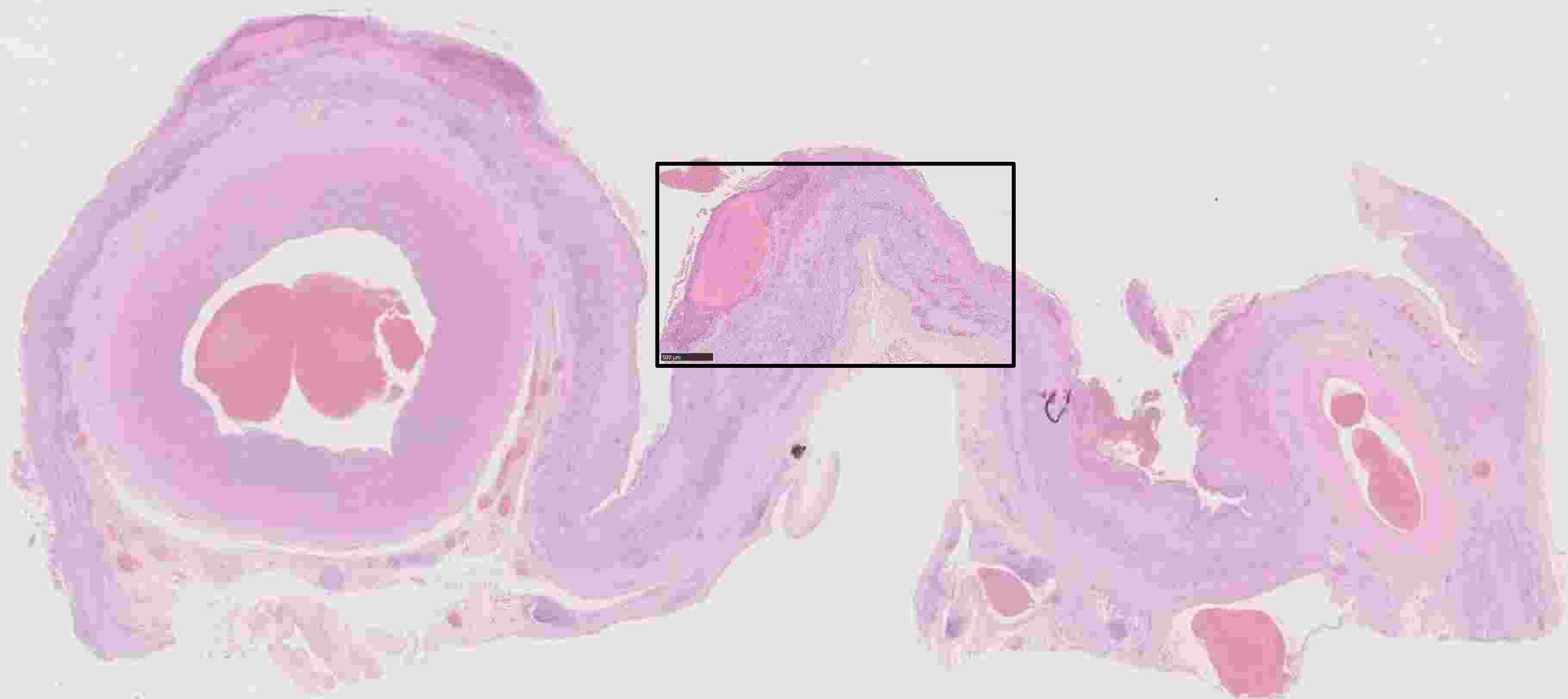
2.5 mm



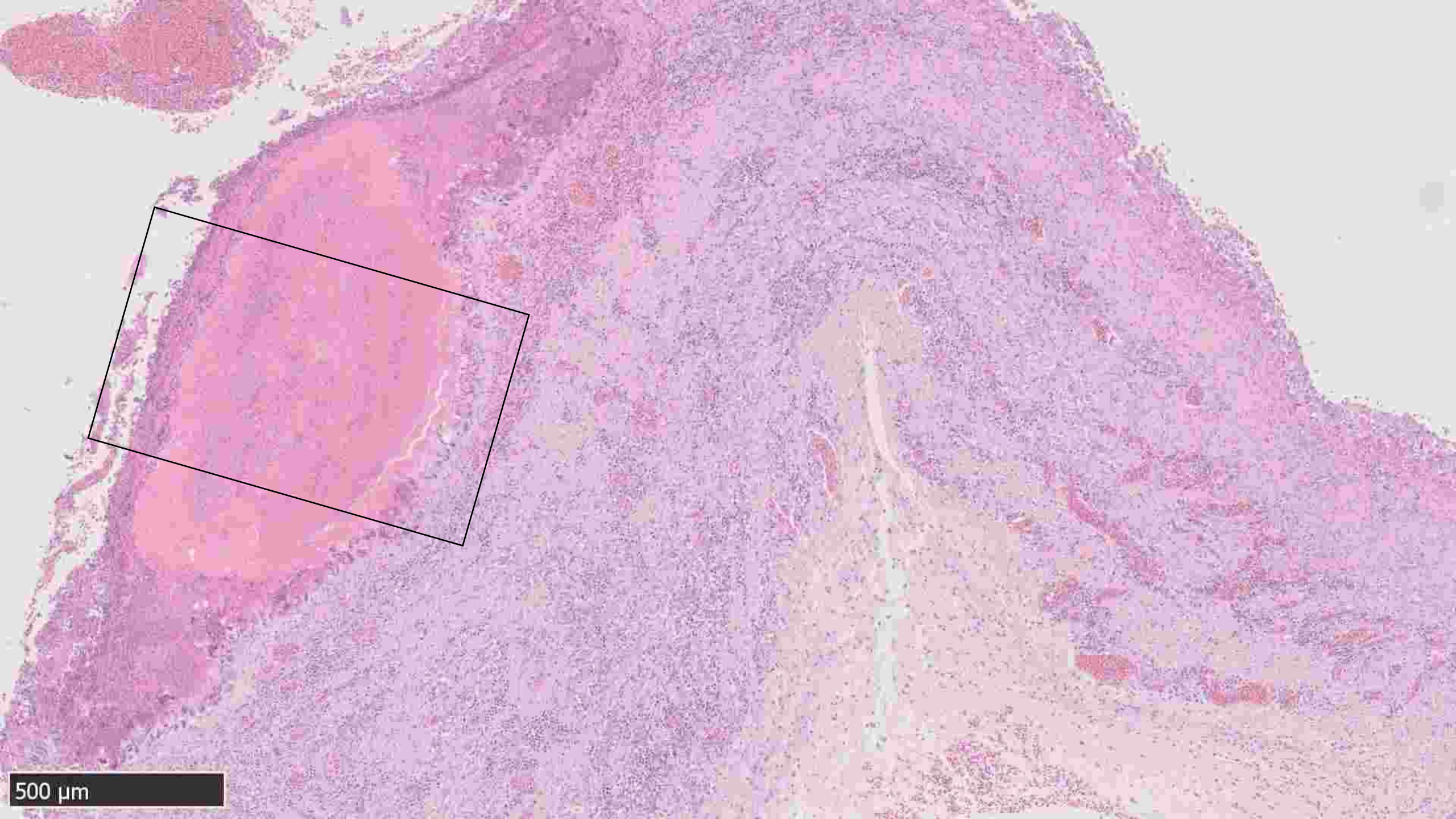
250  $\mu\text{m}$



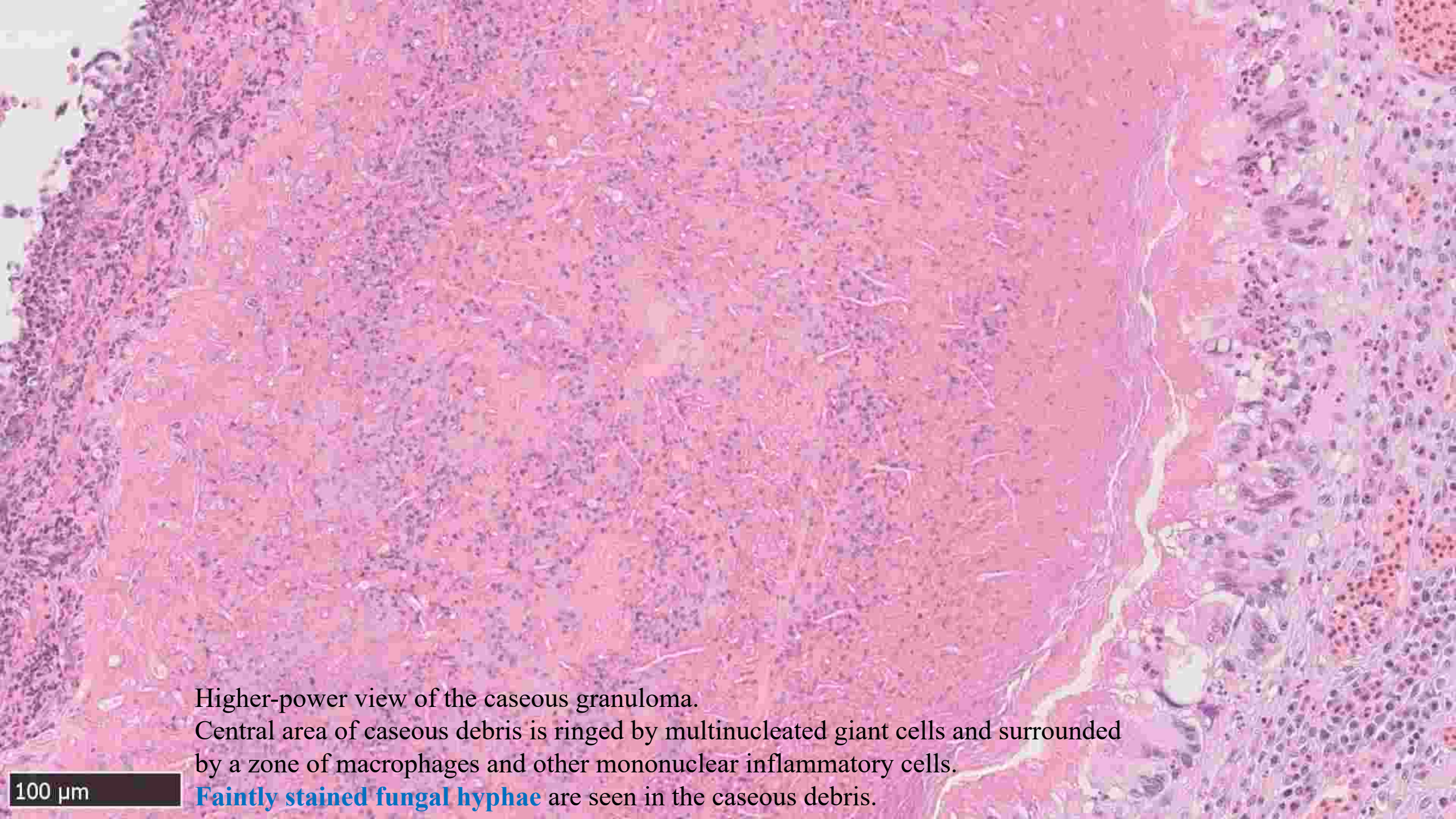
These magnifications show **well-circumscribed mycotic granuloma** consisting of caseous center surrounded by granulomatous reaction.



2.5 mm



500  $\mu\text{m}$

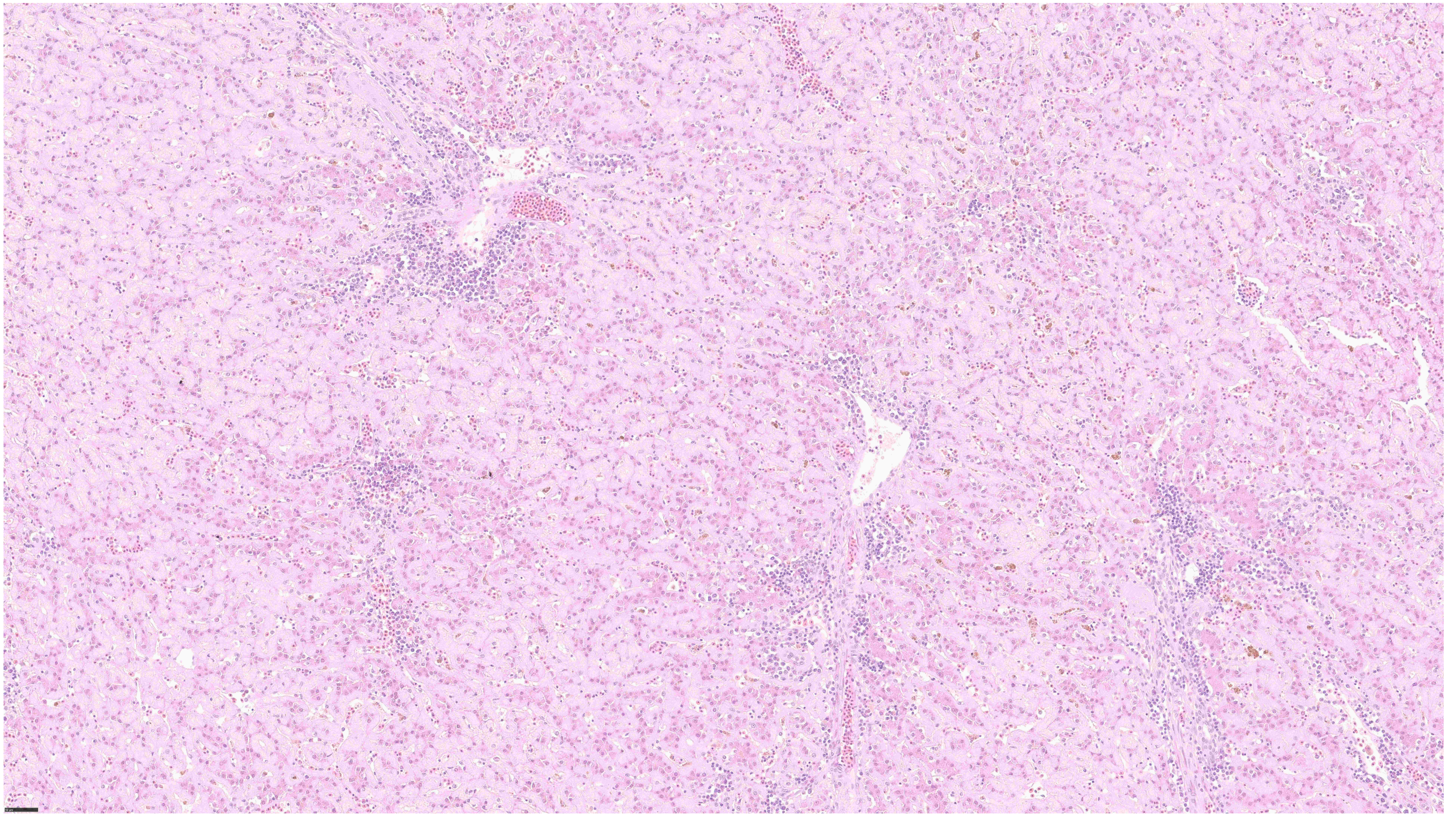


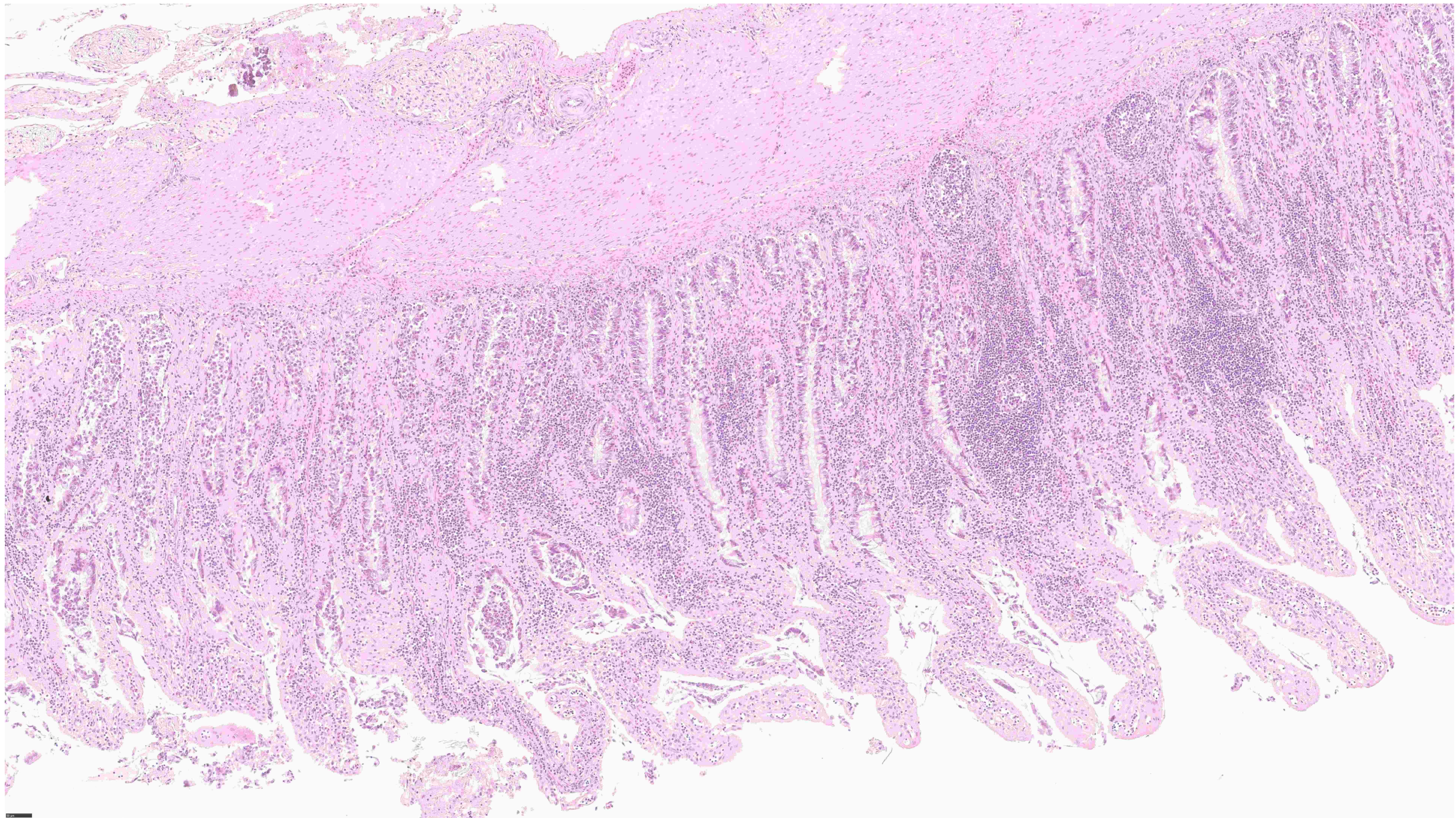
Higher-power view of the caseous granuloma.

Central area of caseous debris is ringed by multinucleated giant cells and surrounded by a zone of macrophages and other mononuclear inflammatory cells.

**Faintly stained fungal hyphae** are seen in the caseous debris.

100  $\mu$ m

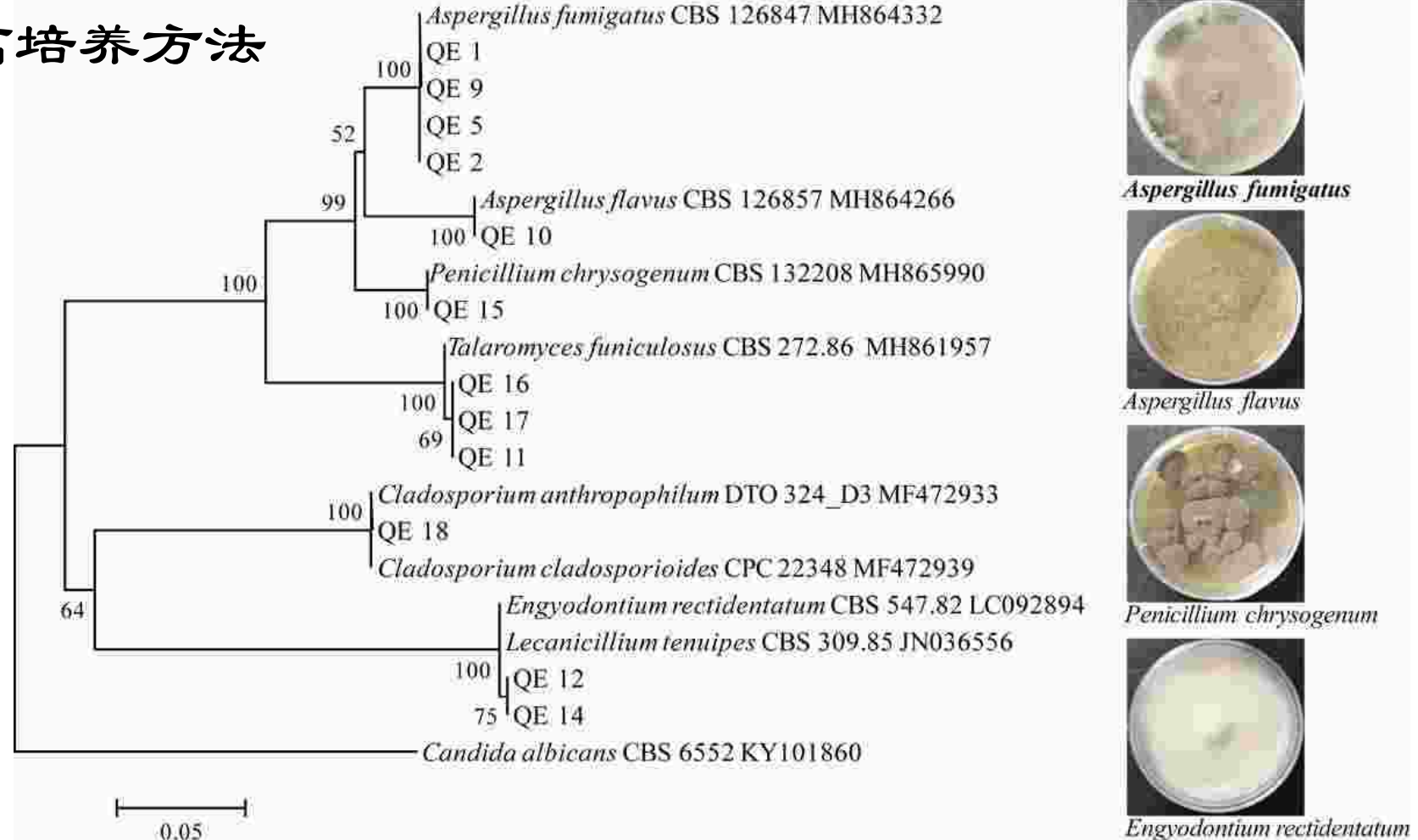






# 企鹅肺组织真菌感染研究

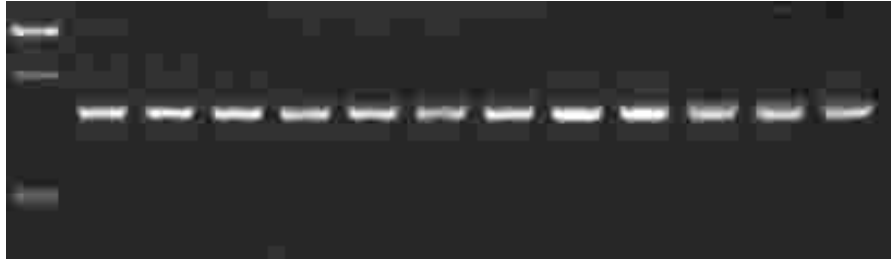
## —分离培养方法



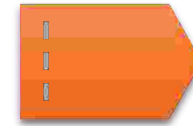
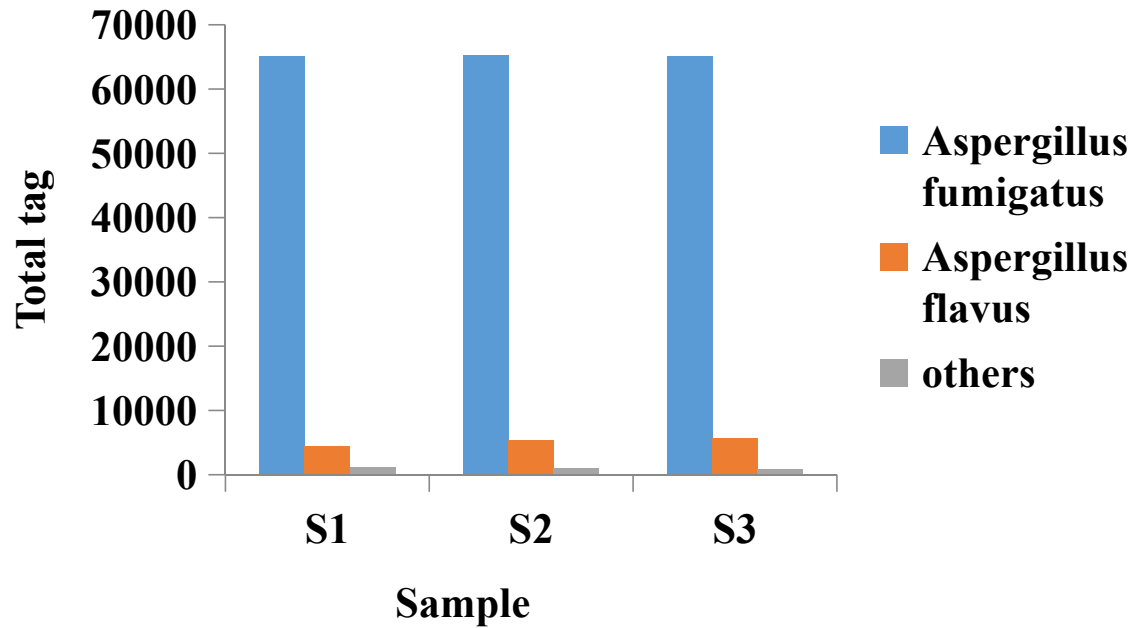
基于ITS序列邻接法分析真菌菌株，总计从企鹅肺部病灶中分离真菌 12 株，分别属于6个种，*Aspergillus fumigatus* 分离频率最高，占分离菌株的33%。

# 企鹅肺组织真菌感染研究

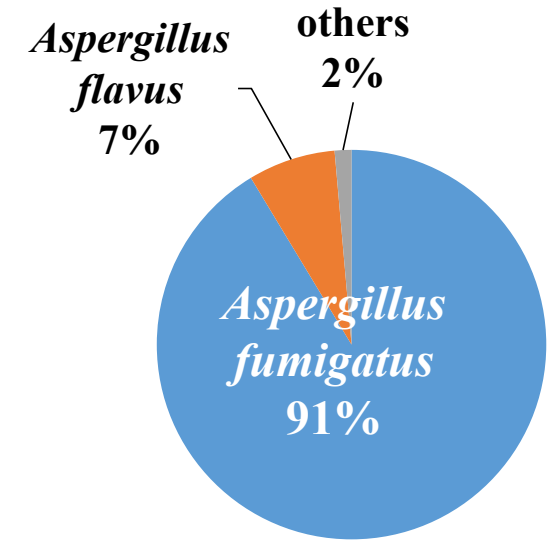
## —非培养方法



琼脂糖凝胶检测 PCR 扩增产物 (ITS序列)



Tissue Sample

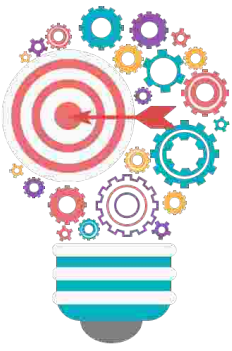




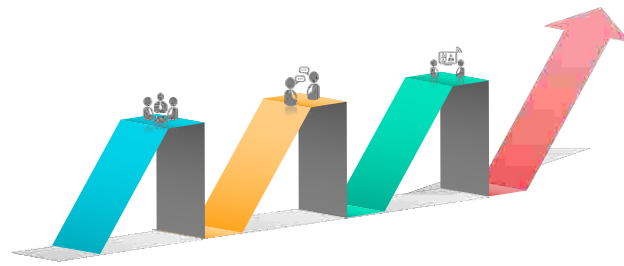
# Introduction



1. Few fungi are common pathogens in avian species, and they are **opportunistic** rather than obligate parasites;
2. **Aspergillosis** is by far **the most prevalent** mycosis of birds and is an **economically important respiratory disease** of poultry;
3. **Aspergillus fumigatus** is the **principal** agent causing aspergillosis in poultry;
4. Aspergillosis in birds usually affects the **lower pulmonary system** with florid lesions in **air sacs and lungs**;
5. Aspergillosis is a greater problem in confined flocks where **stress factors** and **poor air quality** may be involved, or where moldy litter or grain is present;
6. Infections are acquired from **environmental exposure**. Disturbances of **soil** or movement of **hay, compost, or litter** can produce **aerosols** that provide for respiratory exposure to conidia;
7. **Immunosuppressive compounds, inadequate nutrition**, or other infectious diseases are critical for aspergillosis to develop;



## Discussion



### Measures :

**First:** Timely treatment + Strict hygiene (prevention);

**Second:** Reduce stress should also be encouraged at all times;

**Third:** Good breeding and management conditions:

**reducing dust** in poultry houses and **improving ventilation** (air flora density-decreased-the windows were);

**elimination of moldy feed** from the diet and environment, along with proper management of sawdust litter.

# References

