




Osteomyelit Histopatolojisi

Doç. Dr. Nil çulhacı
ADNAN MENDERES ÜNİVERSİTESİ
TIP FAKÜLTESİ
PATOLOJİ AD



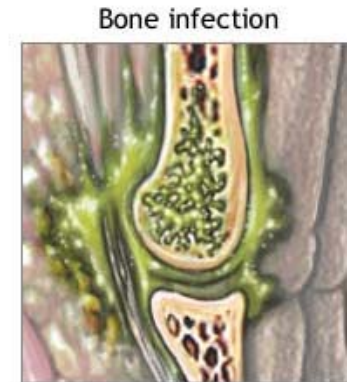
Tanım
Nedenler-etkenler
Sınıflama
Patolojik deęişiklikler
Komplikasyonlar

OSTEOMYELIT

**Kemik ve/veya kemik iliğinin
inflamasyonudur**

OSTEOMYELIT

- Travma
- İmplant
- Doğal bariyerlerin kaybı
 - Dekübit ülserleri
- Savunma mekanizmalarının kaybı
 - Kronik hastalıklar
 - Anemi
 - Malnutrisyon
 - DM



OSTEOMYELIT

- **Sistemik**
- **Lokal**

ETKENLER

- **Bakteriler***
- Mikobakteriler
- Virüsler
- Parazitler
- Mantarlar

-
- *Staphylococcus aureus** (% 70-90)
 - *Escherichia coli*
 - *Streptococcus*
 - *Pseudomonas*
 - *Klebsiella*
 - *Proteus*
 - *Salmonella*
 - *Brucella*

İnfanlarda

Staphylococcus aureus,
Streptococcus agalactiae
Escherichia coli

Çocukta

Staphylococcus aureus
Streptococcus pyogenes
Haemophilus influenzae

Erişkinde

Staphylococcus aureus

Actinomyces

Protez

Staphylococcus a.
Streptococcus
Gram-negatif
aerobik basil

Vertebral osteomyelit

Mycobacterium t.
Staphylococcus a.
Streptococcus
Brucella

Post-travmatik

Staphylococcus a.
Polimikrobia gram-negatif
aerobik basil
Anaerob

Diabetik ayak


Staphylococcus a.
Streptococcus
Enterococcus
Bakteriodes fragilis



SINIFLAMA

- Hastalığın süresi
- Lokalizasyon
- Etiyolojik ajan
- Gelişim mekanizması

- 
-
- Akut
 - Subakut
 - Kronik

- 
-
- **Tüberküloz osteomyeliti**
 - **Brusella osteomyeliti**
 - **Sifilitik osteomyelit**
 - **Aktinomices osteomyeliti**
 - **Fungal osteomyelit**

- 
-
- **Vertebral osteomyelit**
 - **Uzun kemiklerin osteomyeliti**

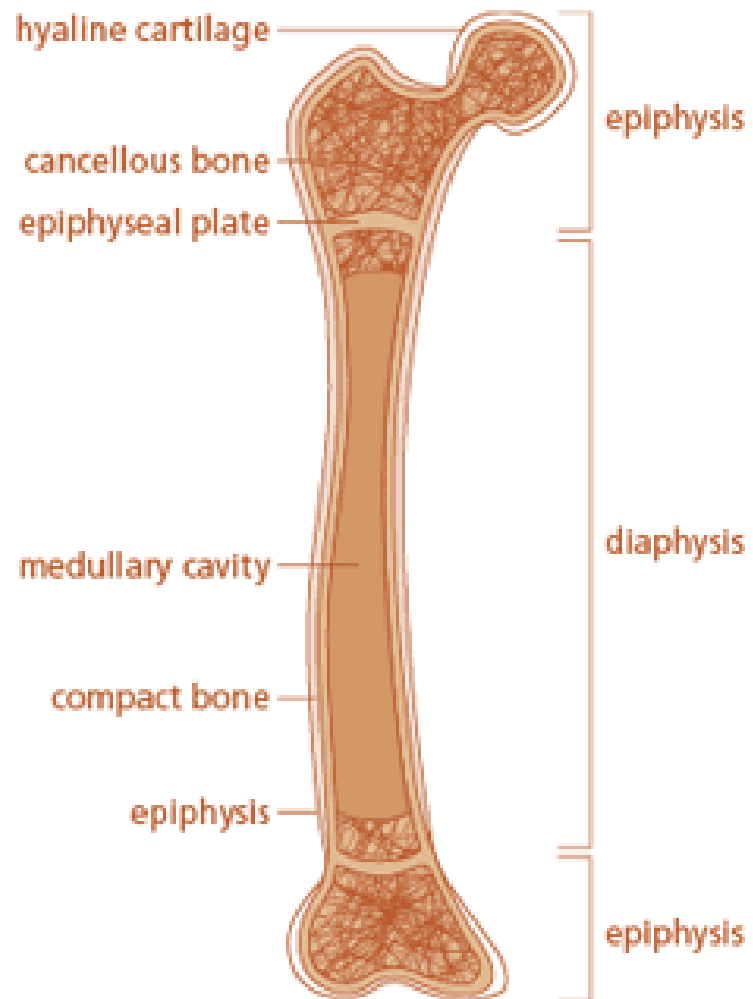
-
- Direkt yayılım % 50
 - Periferik vaskuler hastalıklar % 30 *
 - Hematojen yol % 20

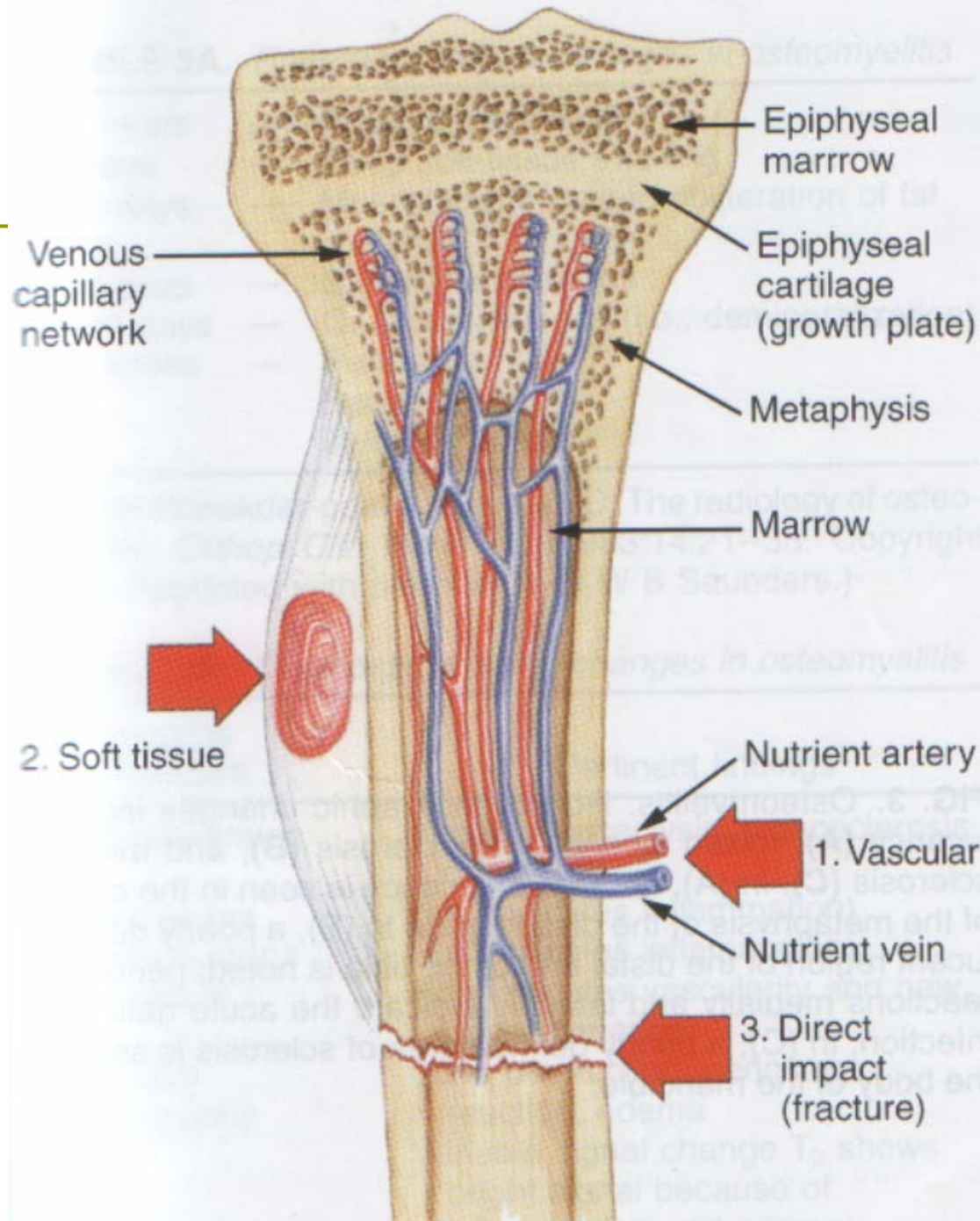


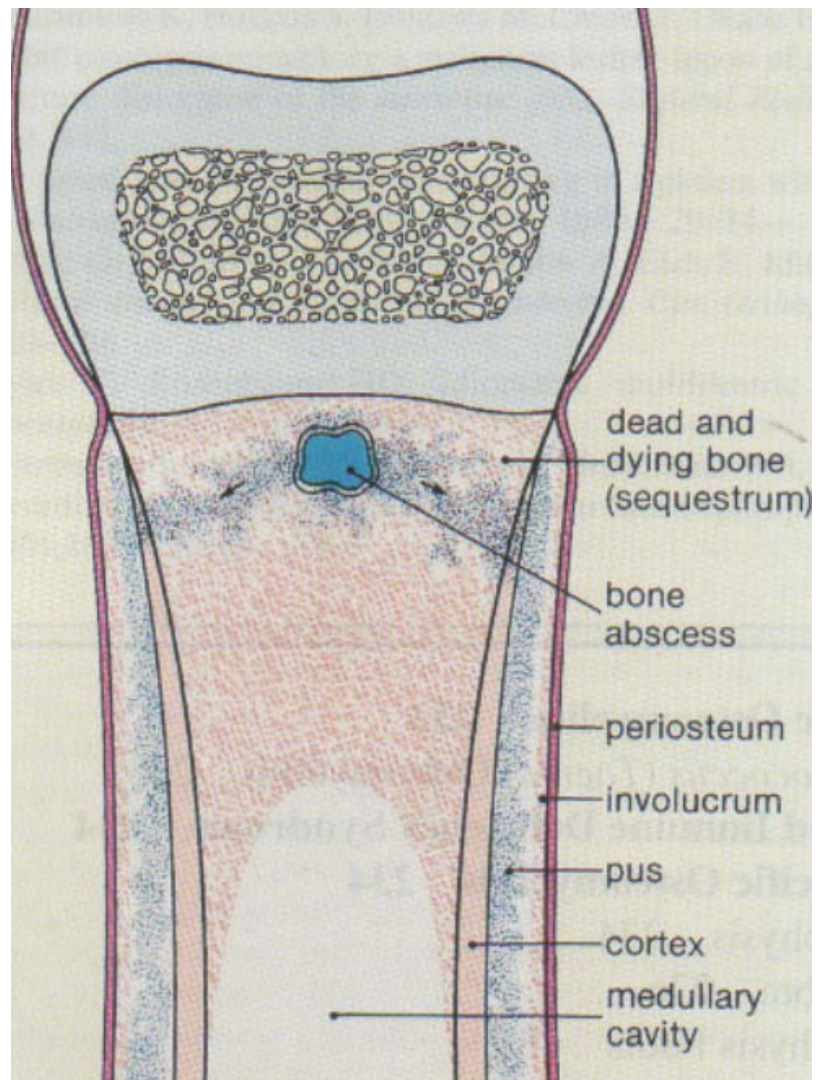
- Deri
- Respiratuvar sistem
- Genitoüriner sistem enfeksiyonları

Cierny-Mader sınıflaması

- **Evre I (medüller):**
Osteomyelit medüller kaviteye sınırlıdır
Hematojen yayılım örnektir
- **Evre II (yüzeyel):**
Kemığın kortikal kısmını tutar
Direkt inokulasyon örnektir
- **Evre III (lokalize):**
Hem kortikal hem medüller kısmı tutar
- **Evre IV (diffüz):**
Tüm kemik tabakalarını tutar











PATOLOJİK DEĞERLENDİRME

- İİAB
- Biopsi materyali
- Küretaj materyali
- Radikal materyal
- Frozen

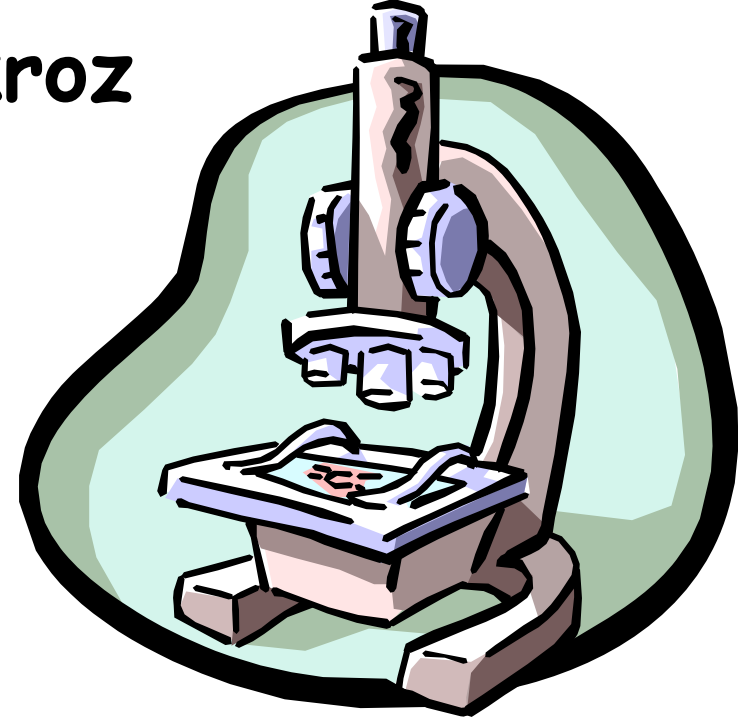
IIAB

- H&E
- MGG
- PAP

İİAB

- Nötrofil
- Lenfosit
- Makrofaj
- Ölü kemik doku fragmanları
- Epitelioid hücreler
- Dev hücreler
- Nekroz

Tbc



Biopsi

- H&E
- PAS
- Acid-fast
- Gümüşleme
- Gram

Makroskobik deęişiklikler

Biyopsi örneklerinde **fibrinopürülan materyal, nekrotik kemik dokusu** izlenir





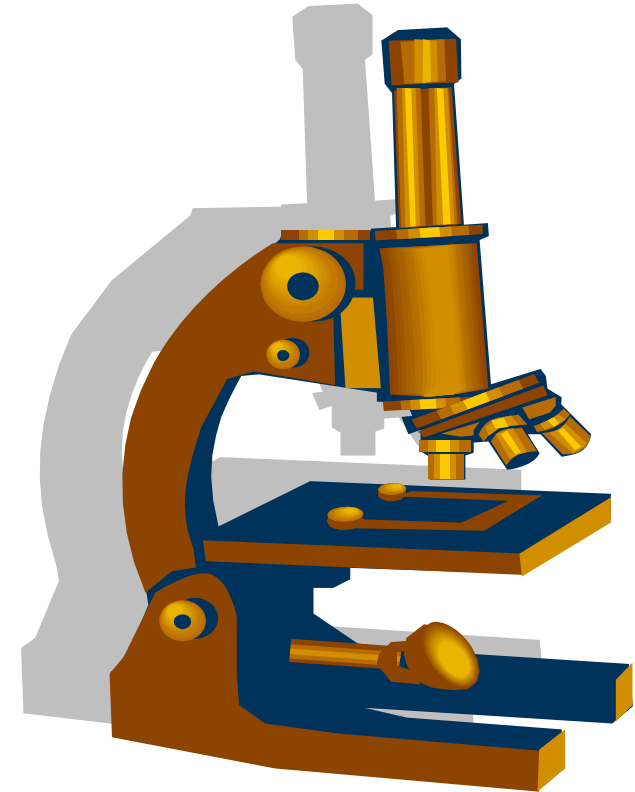


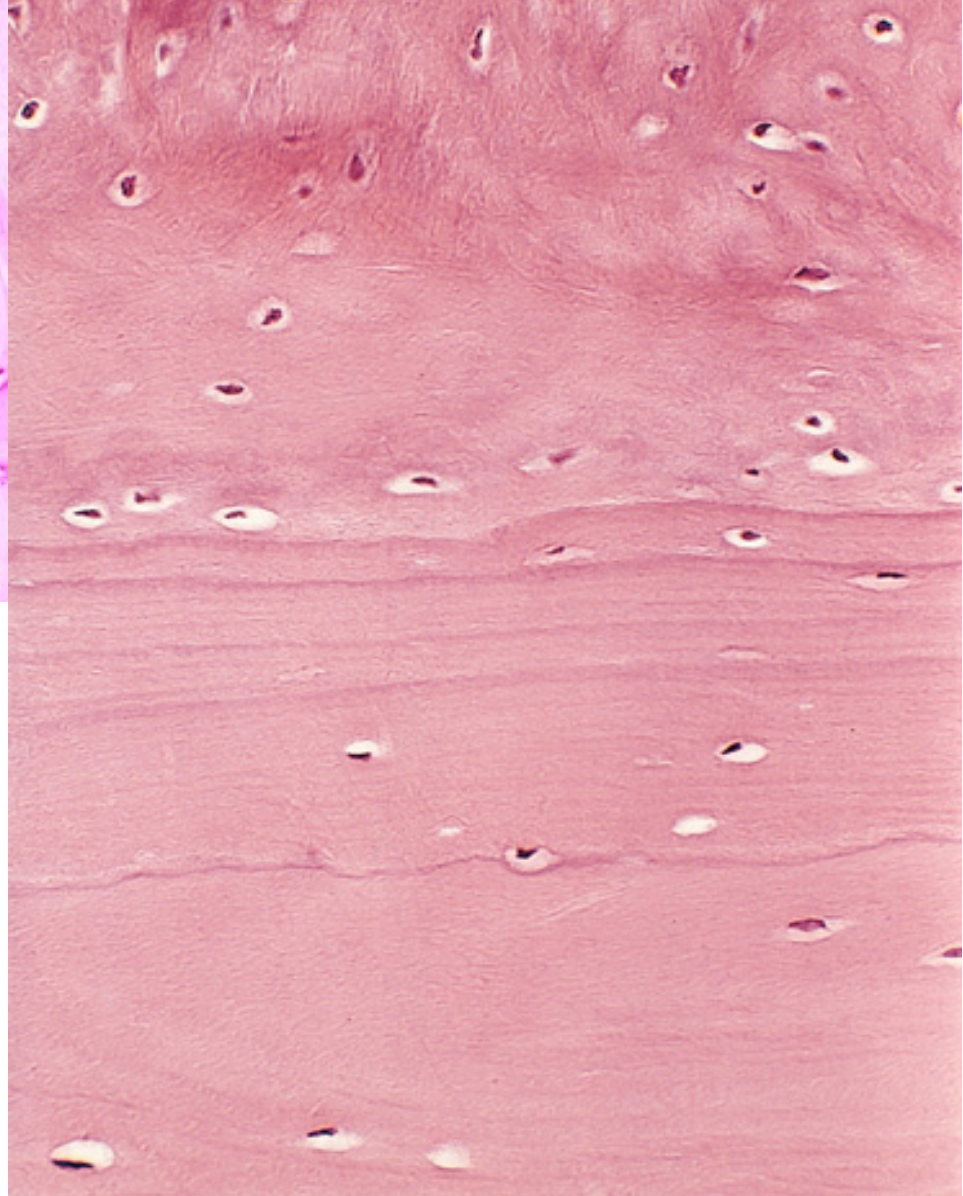
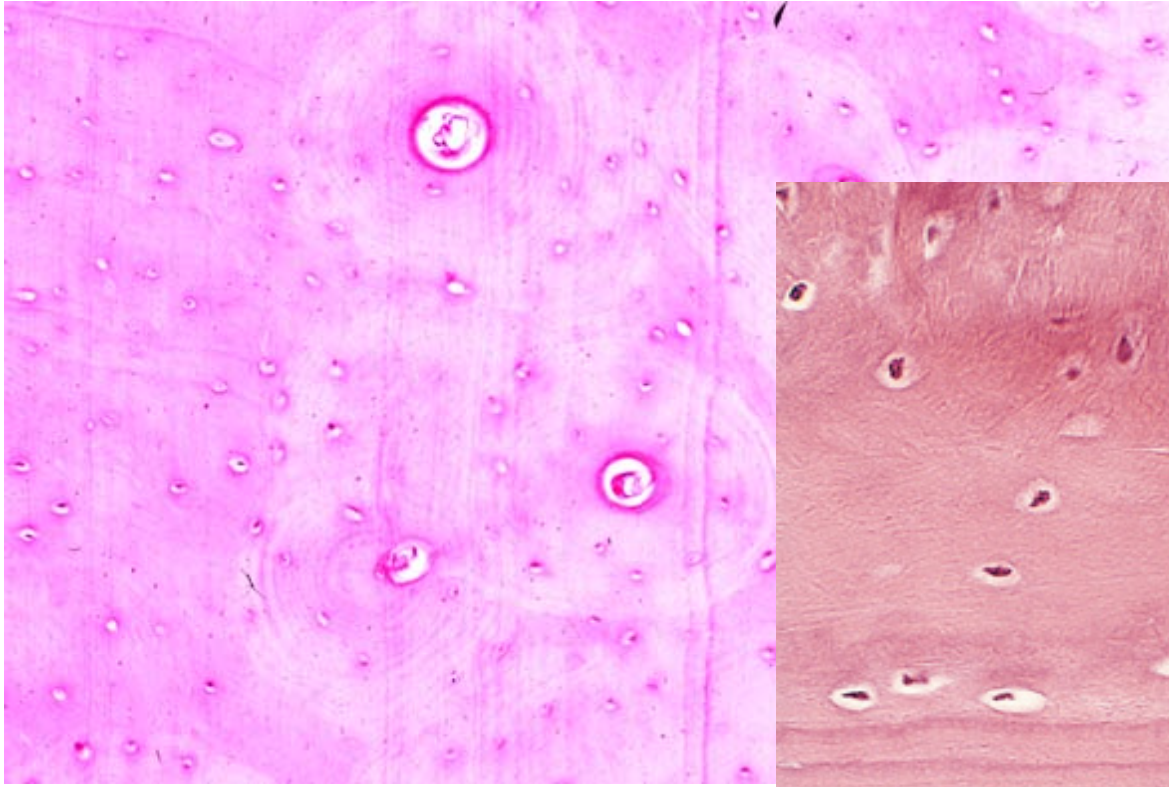


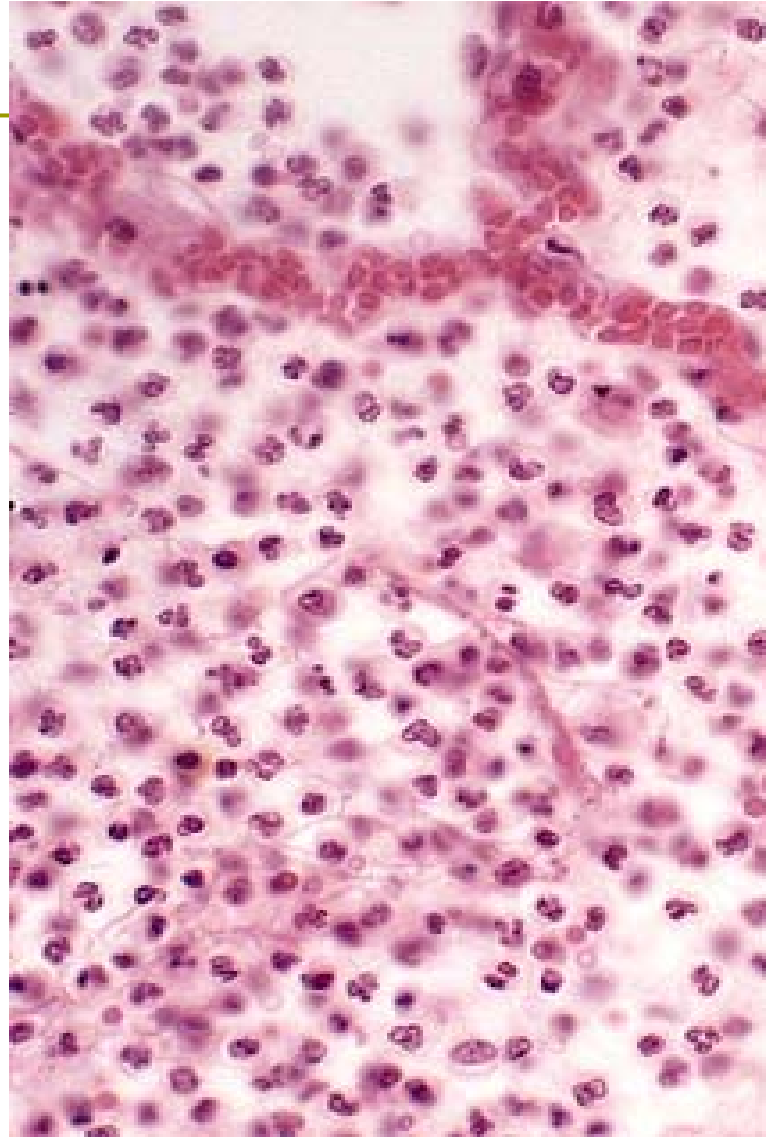
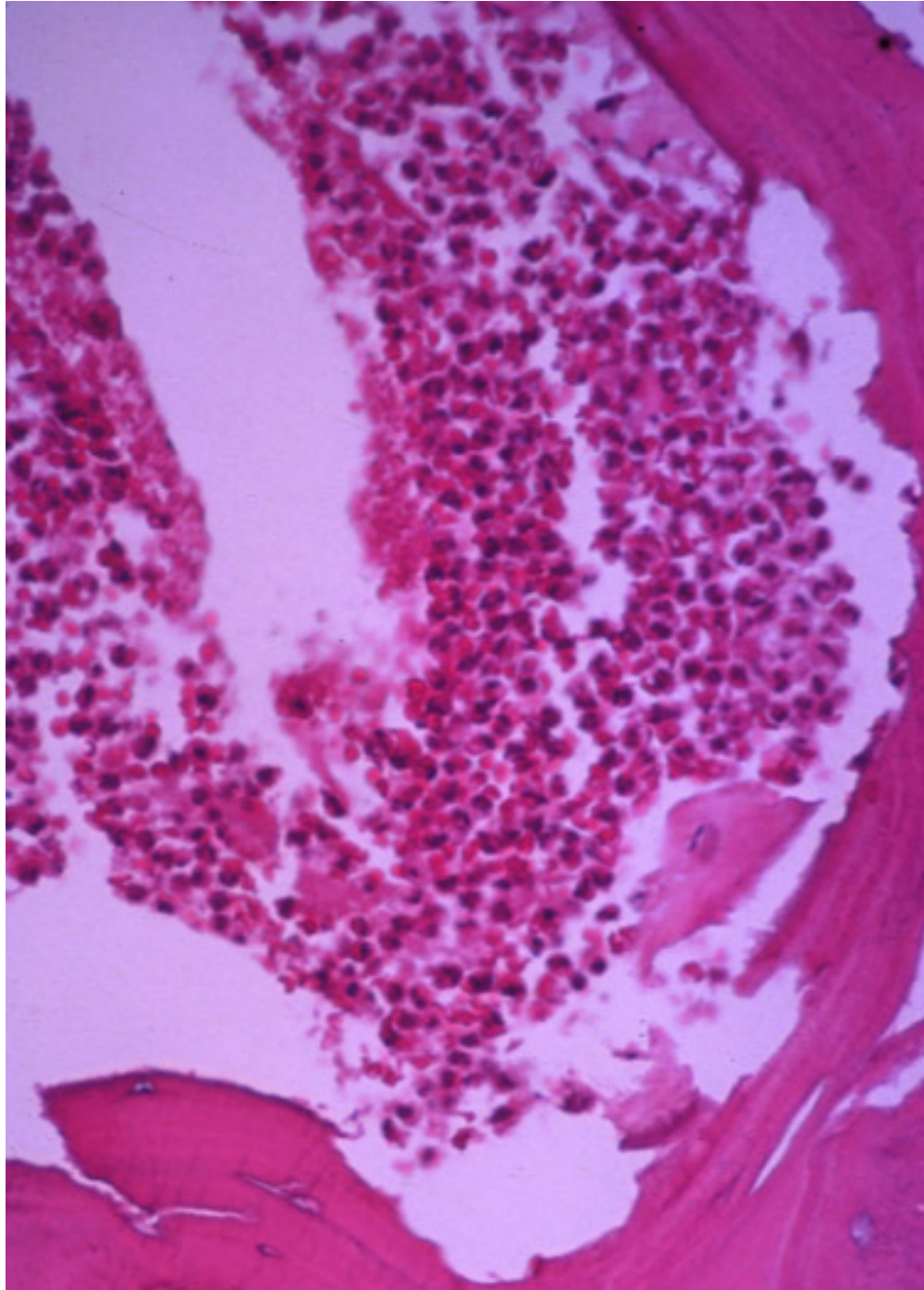
Histopatolojik deęişiklikler

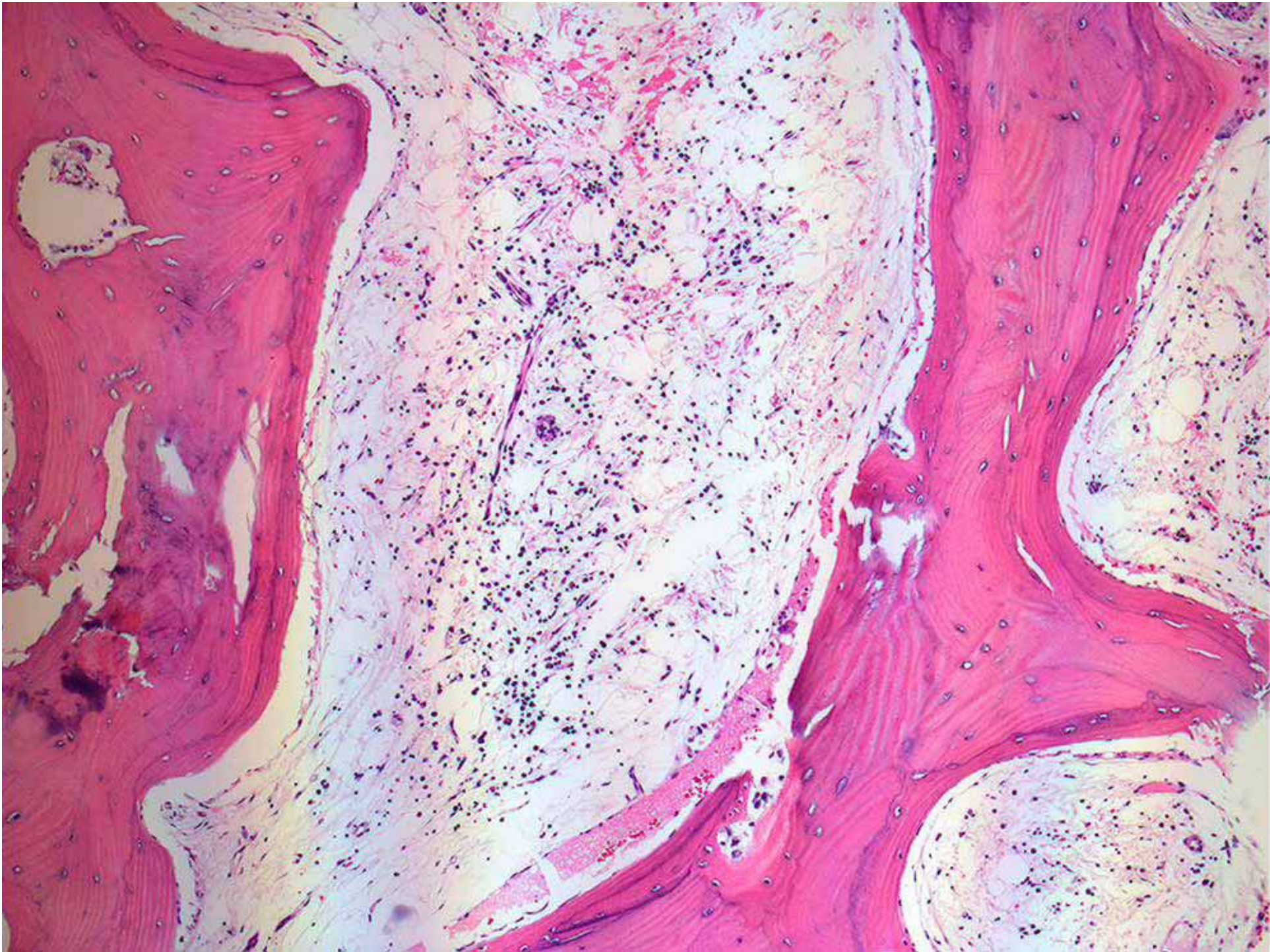
AKUT

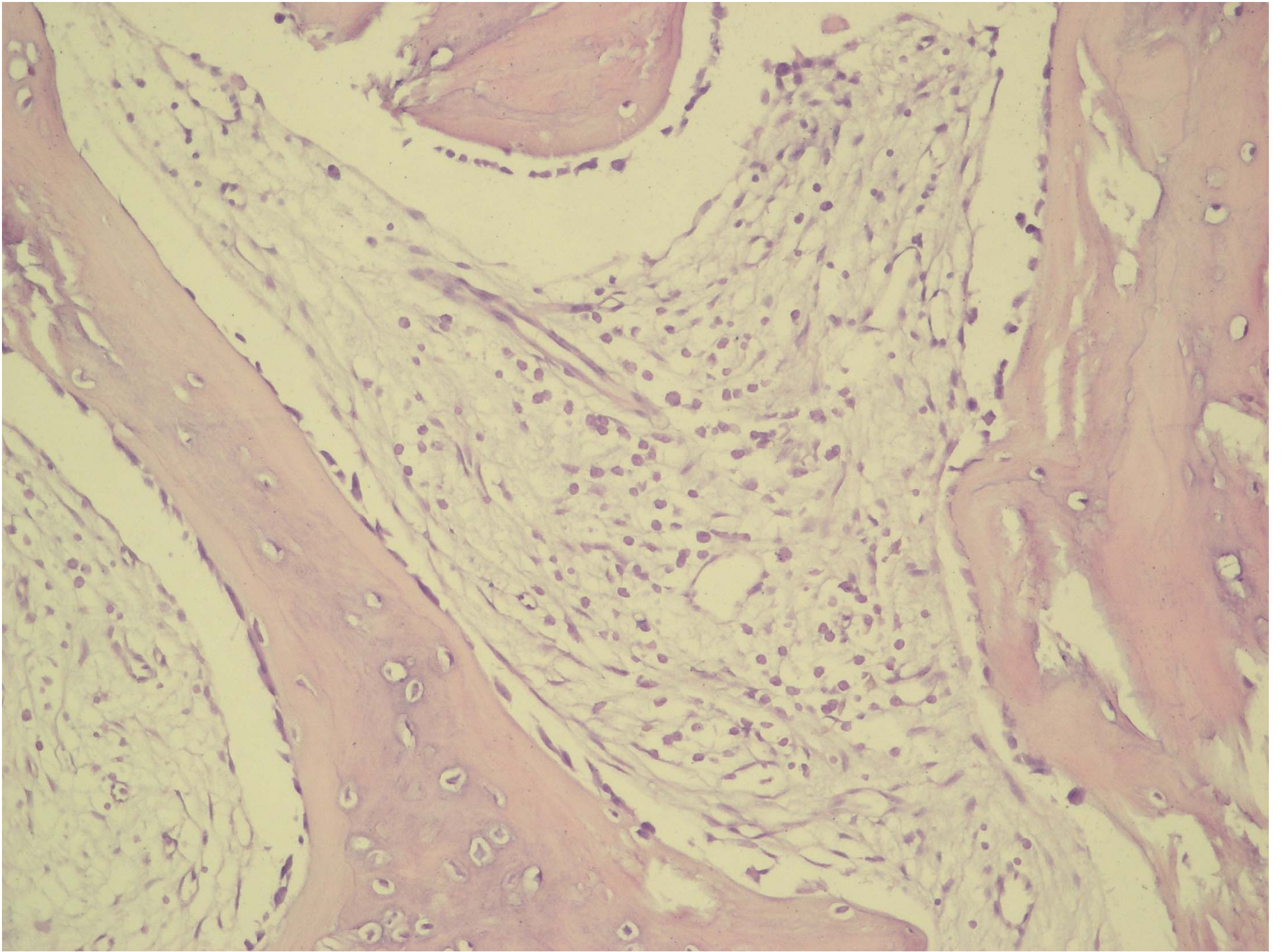
- Süpüratif inflamasyon, nötrofiller
- Ödem
- Konjesyon
- Tromboz
- Nekrotik doku
- Osteoklastik aktivite

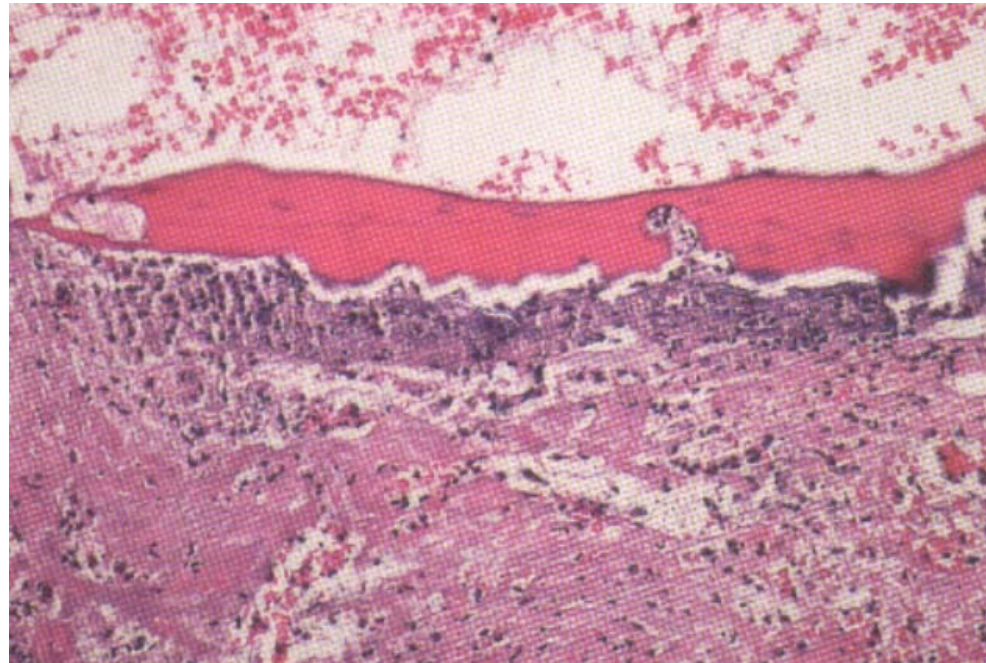
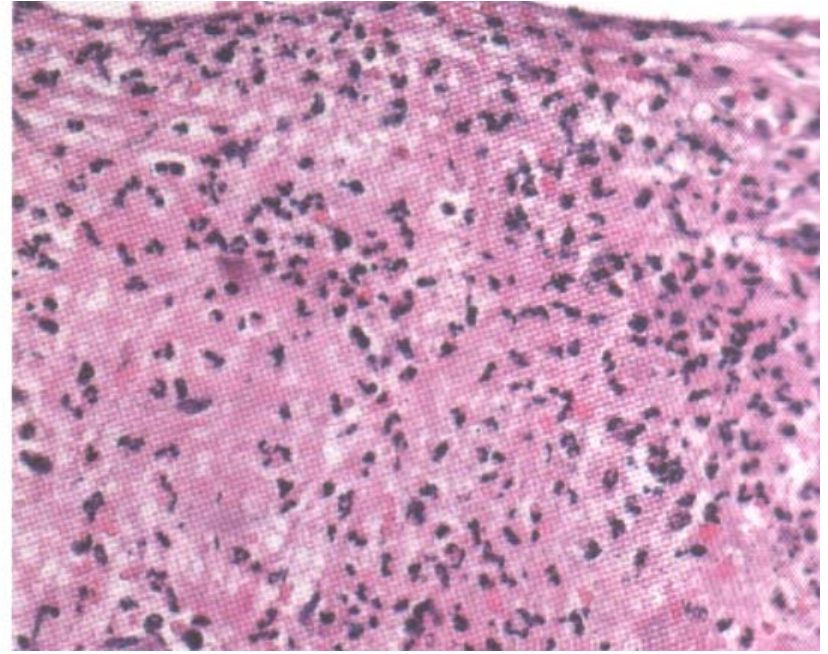
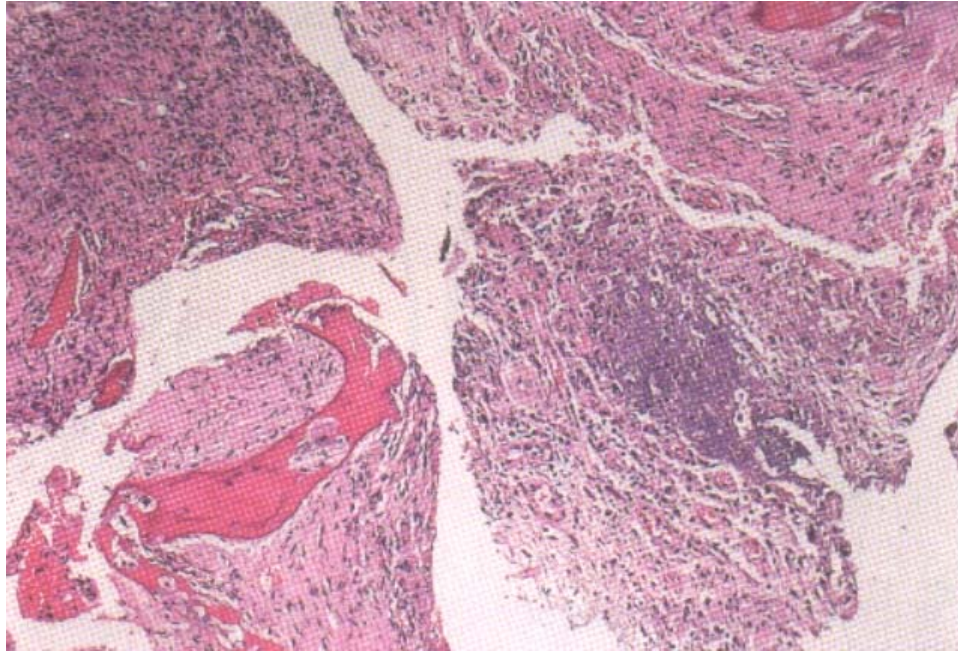


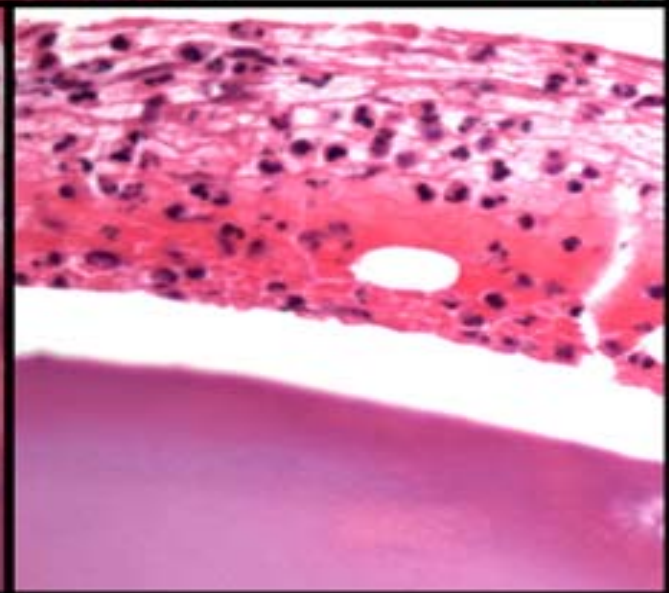
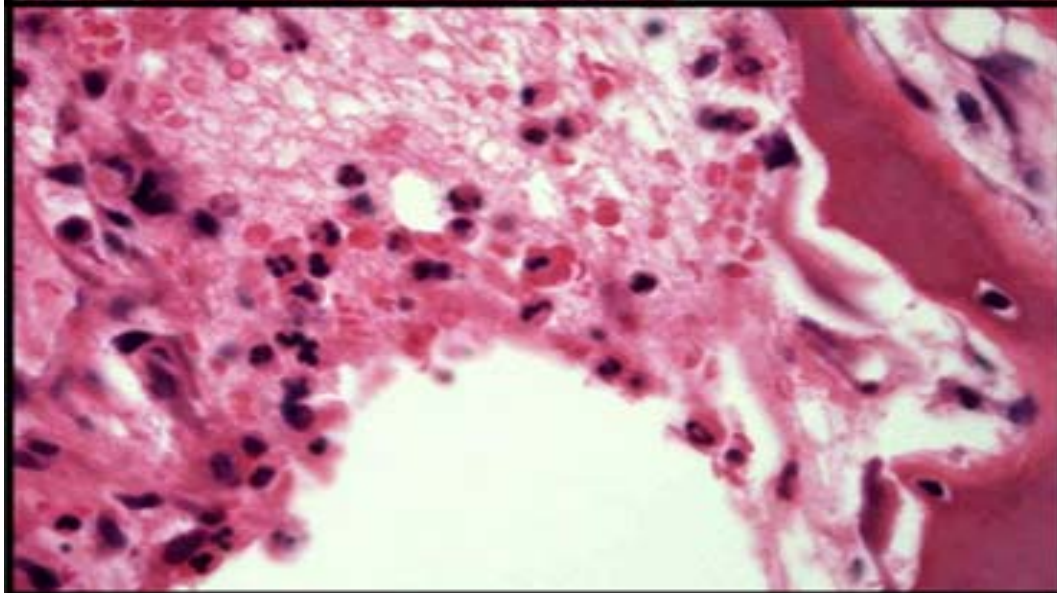
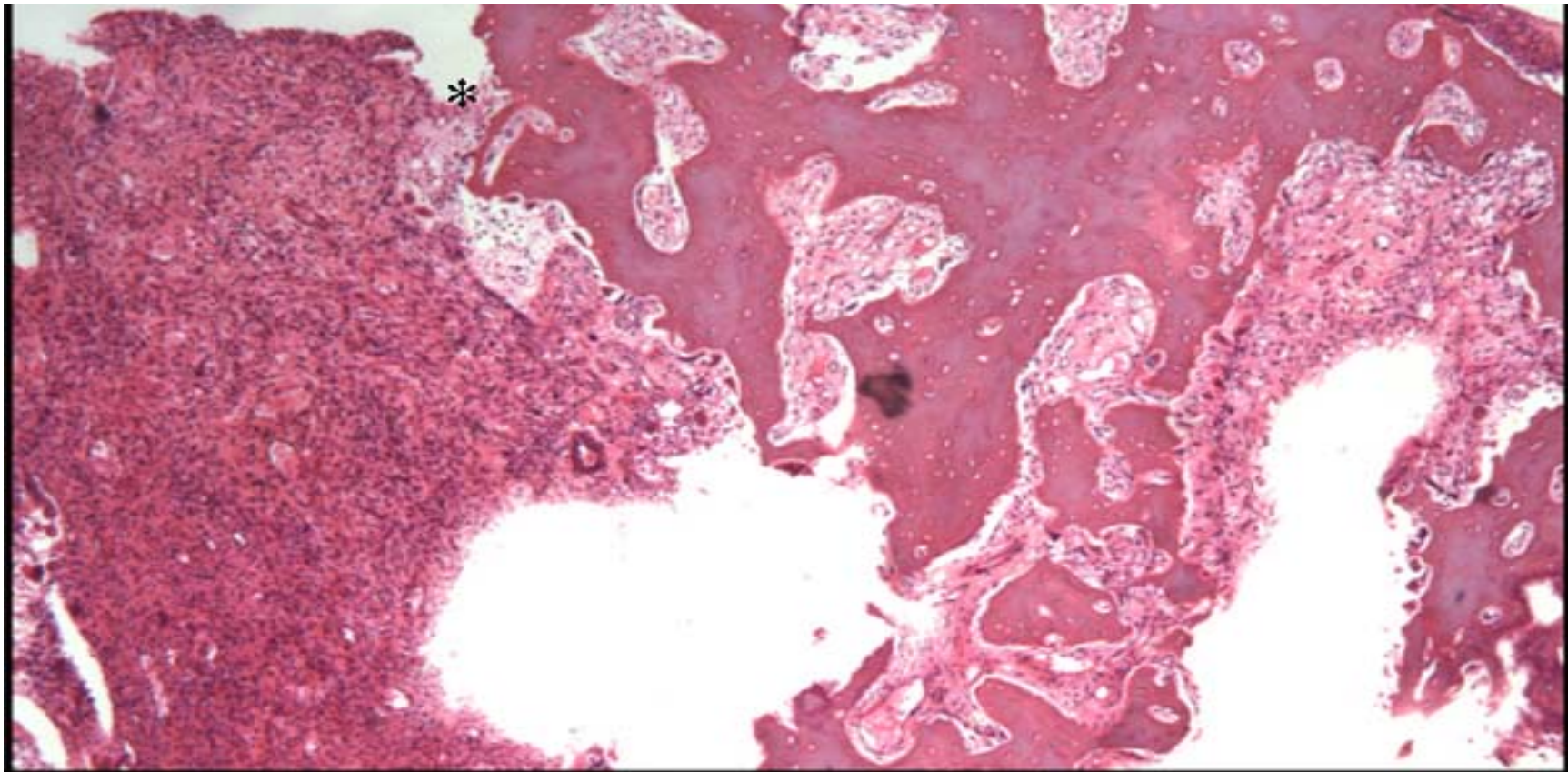


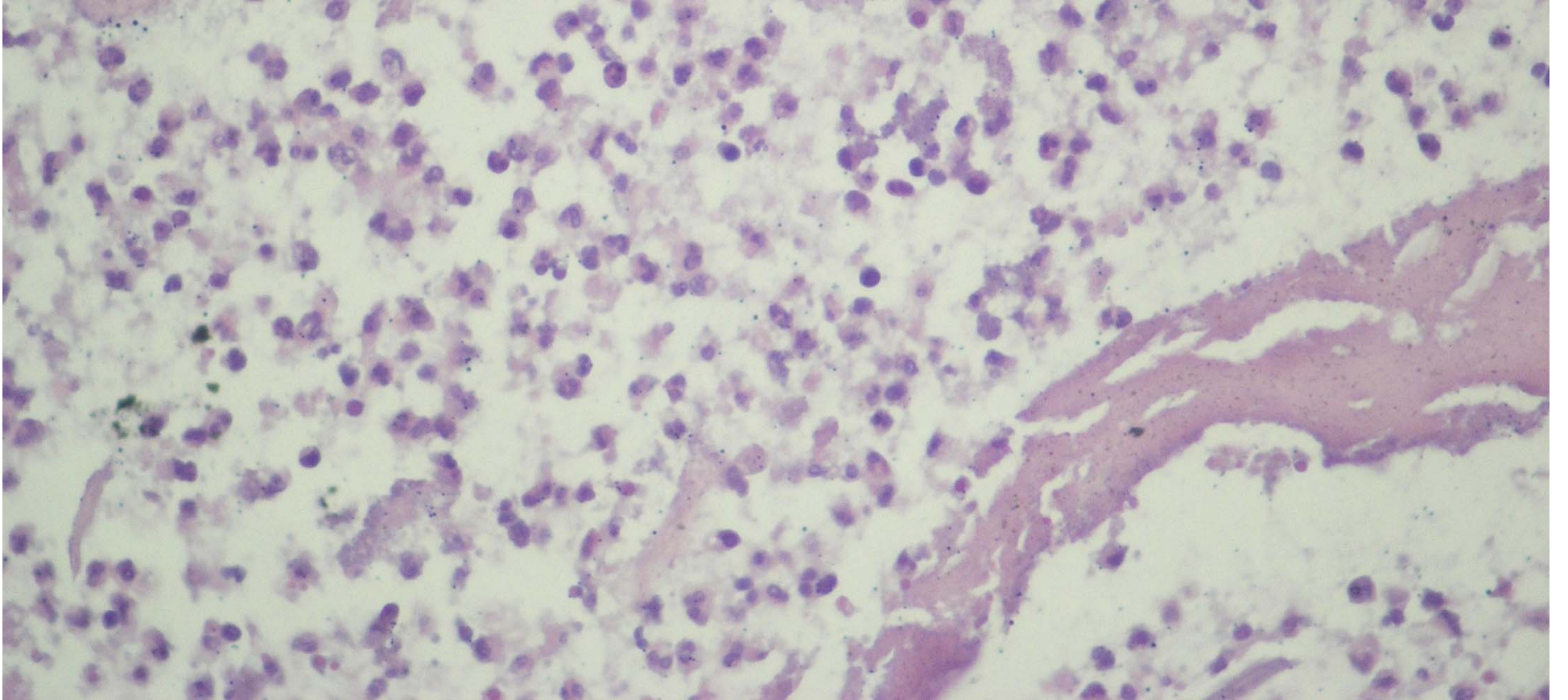
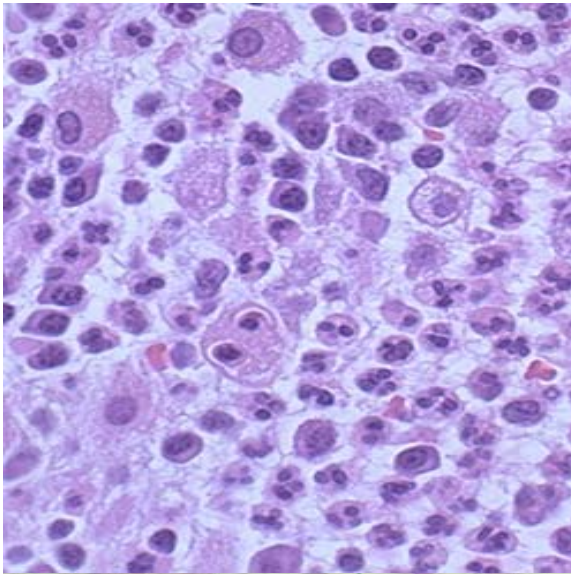


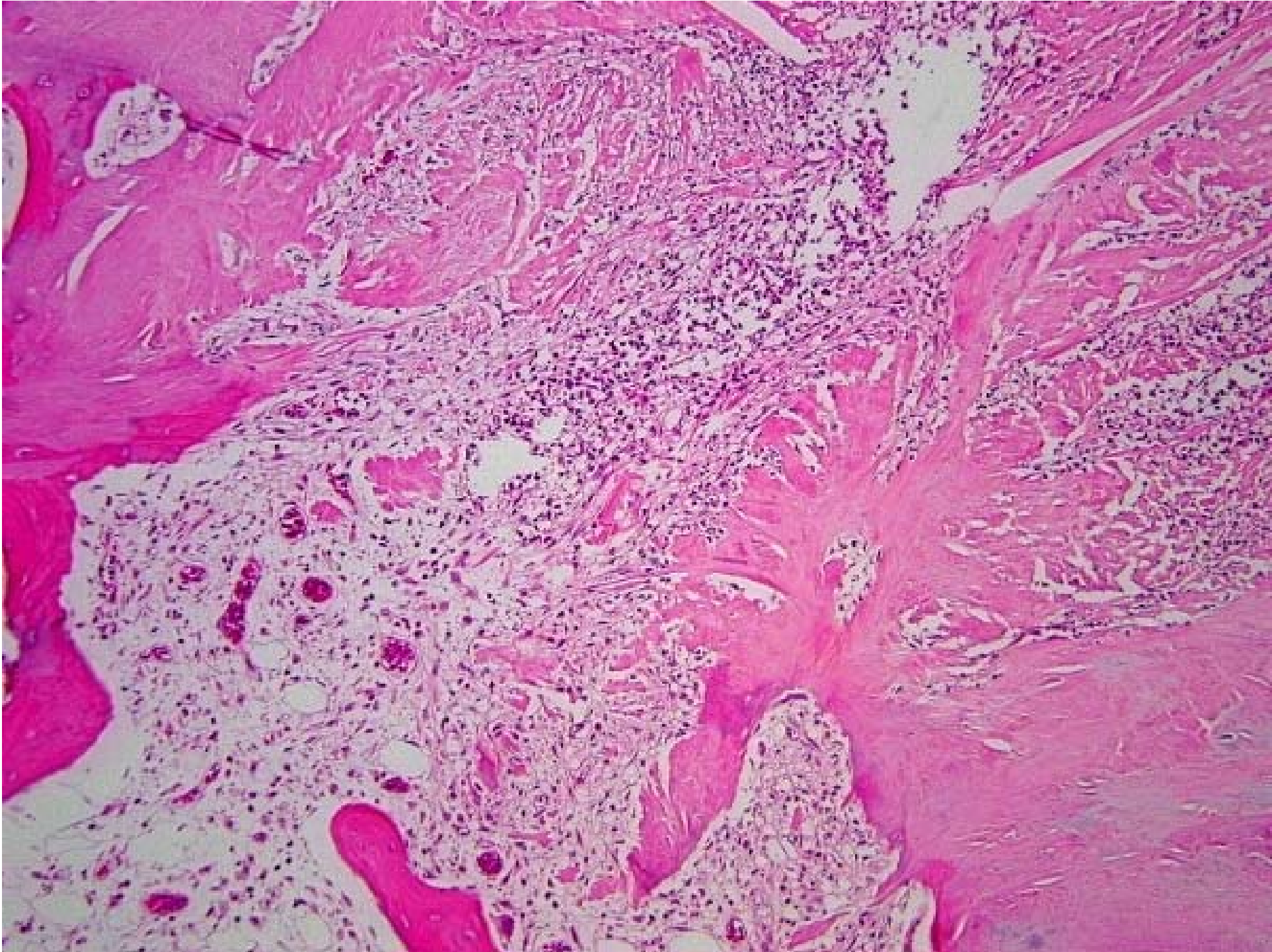


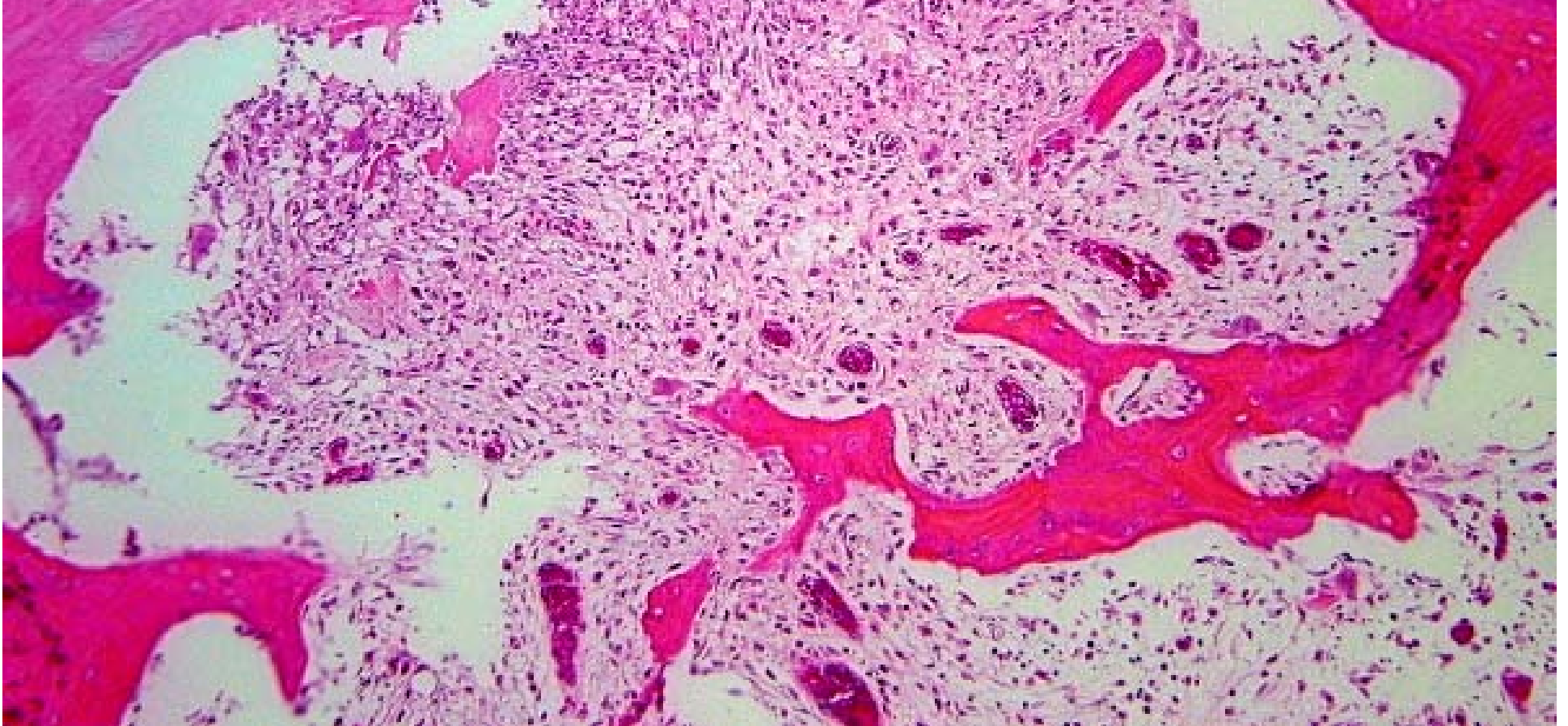
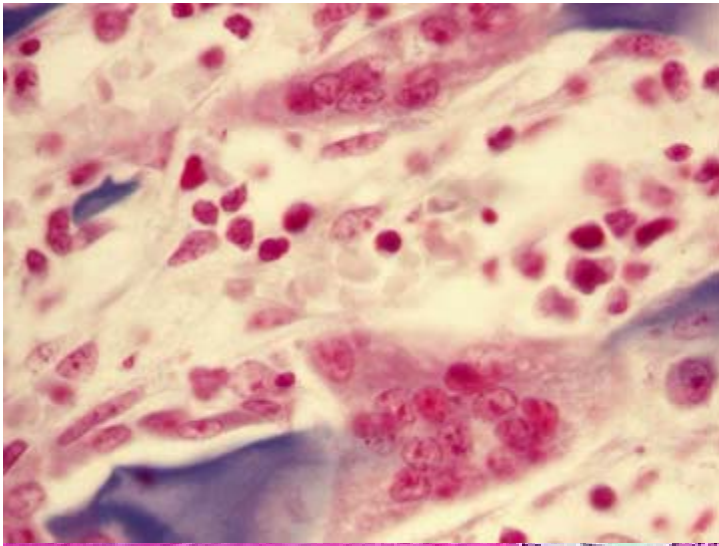


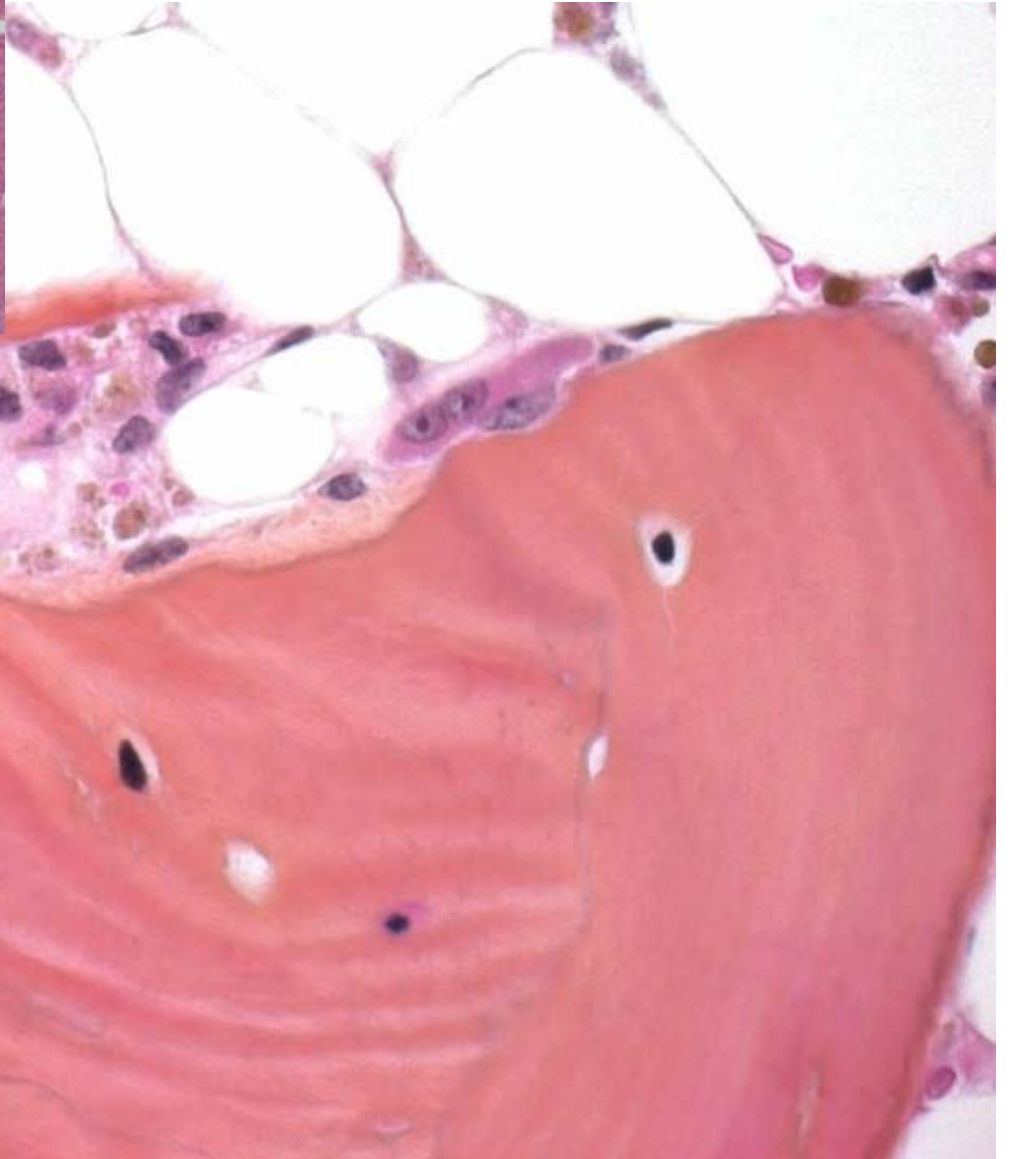
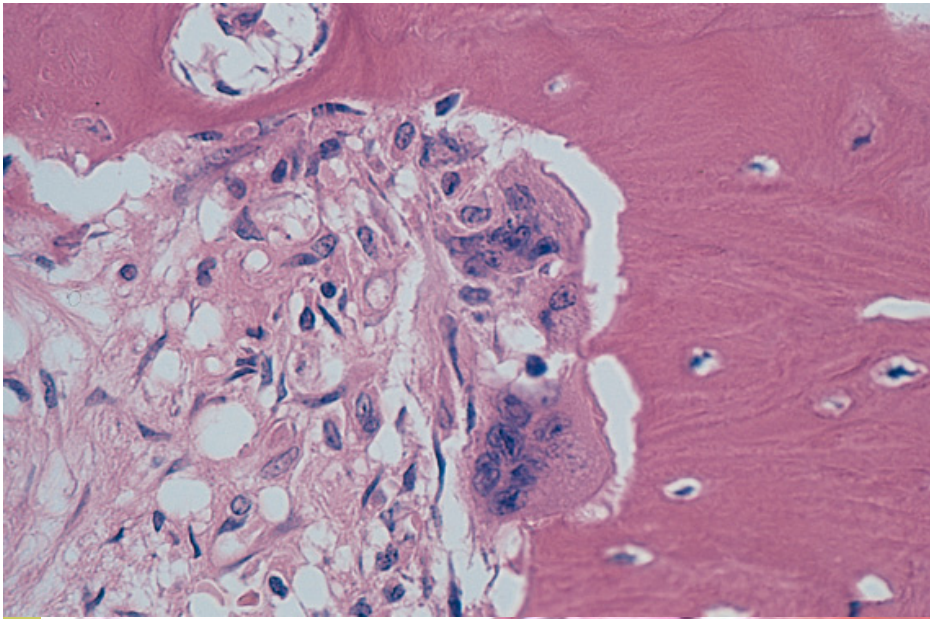


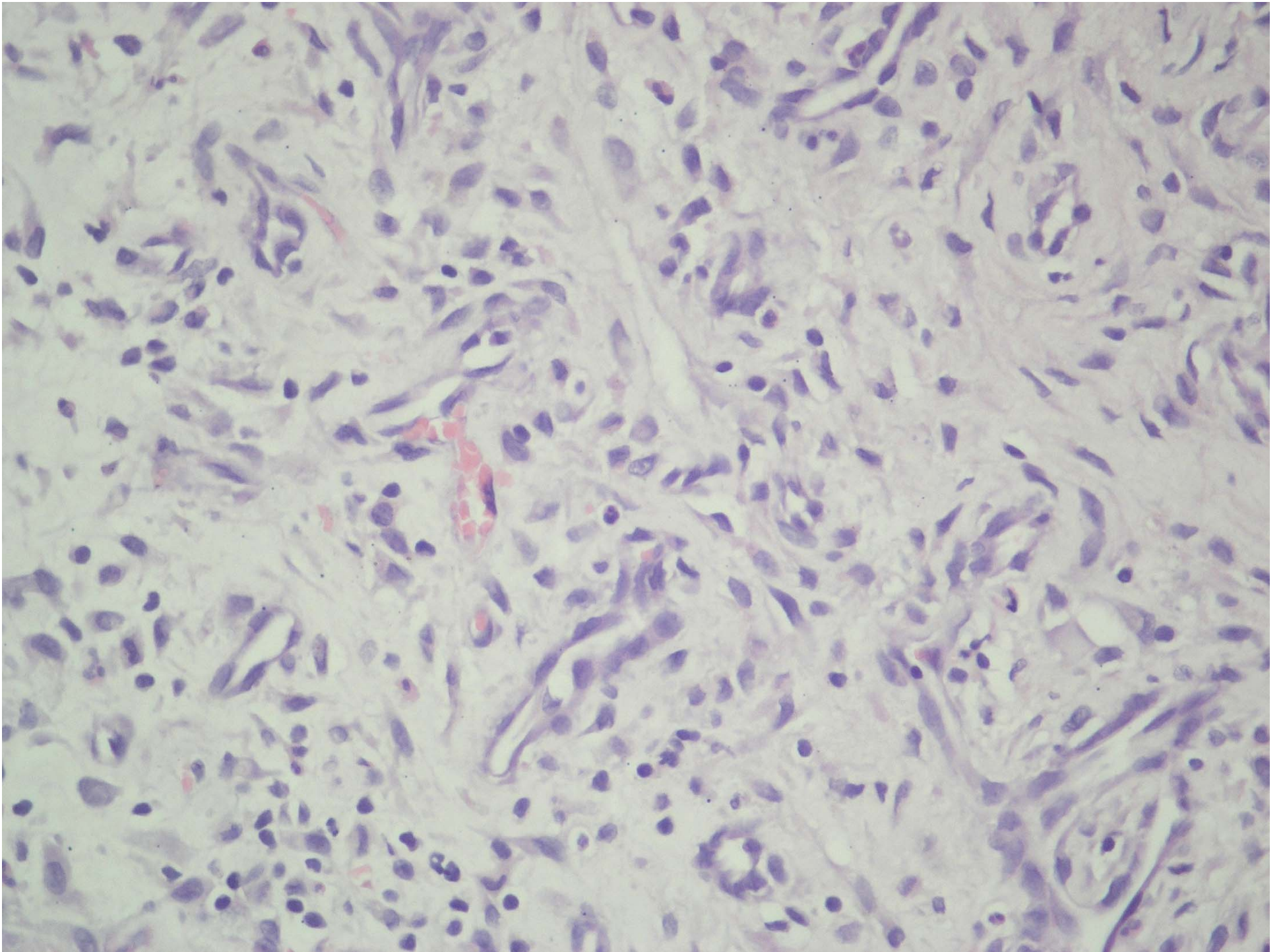


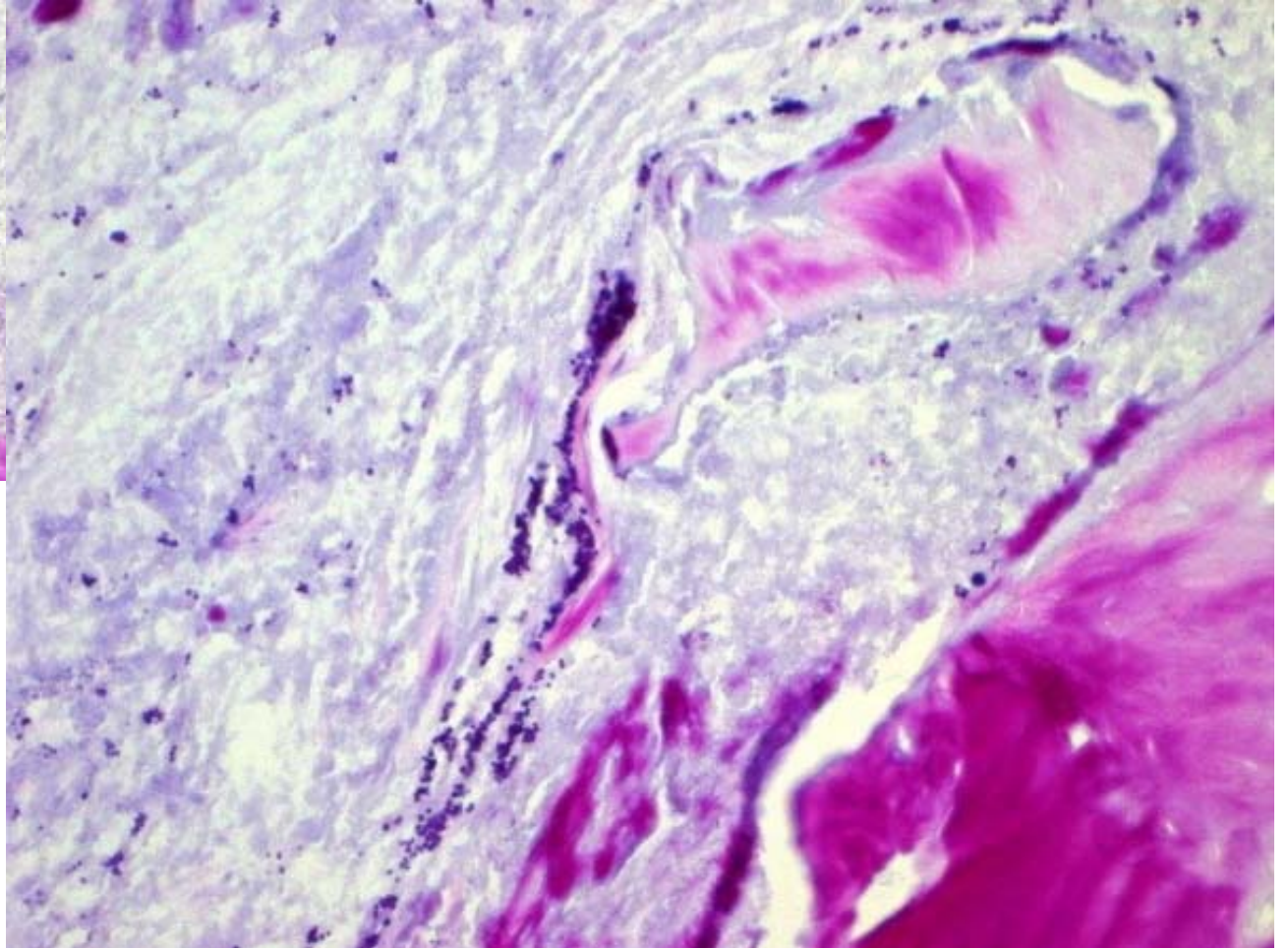
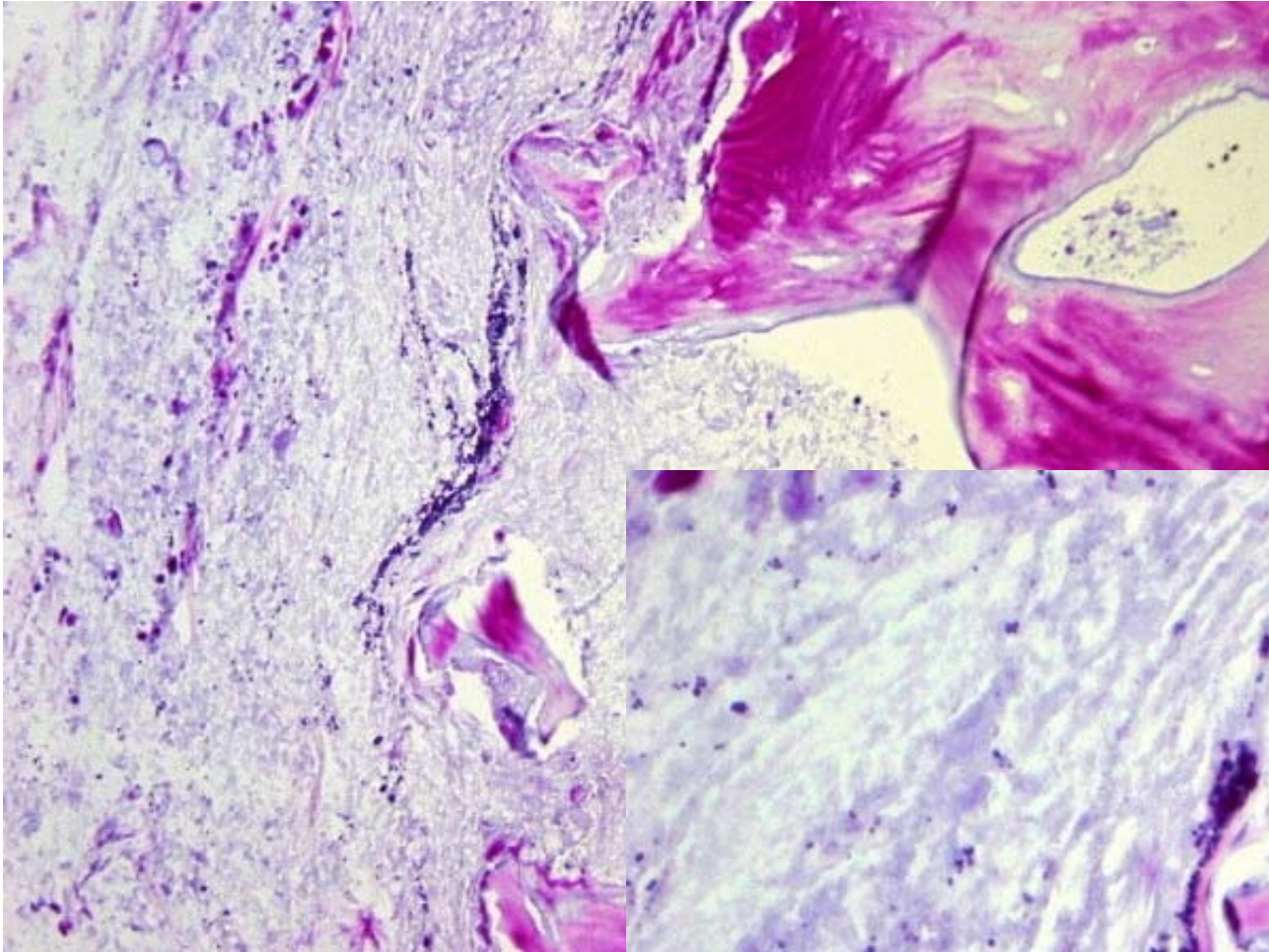








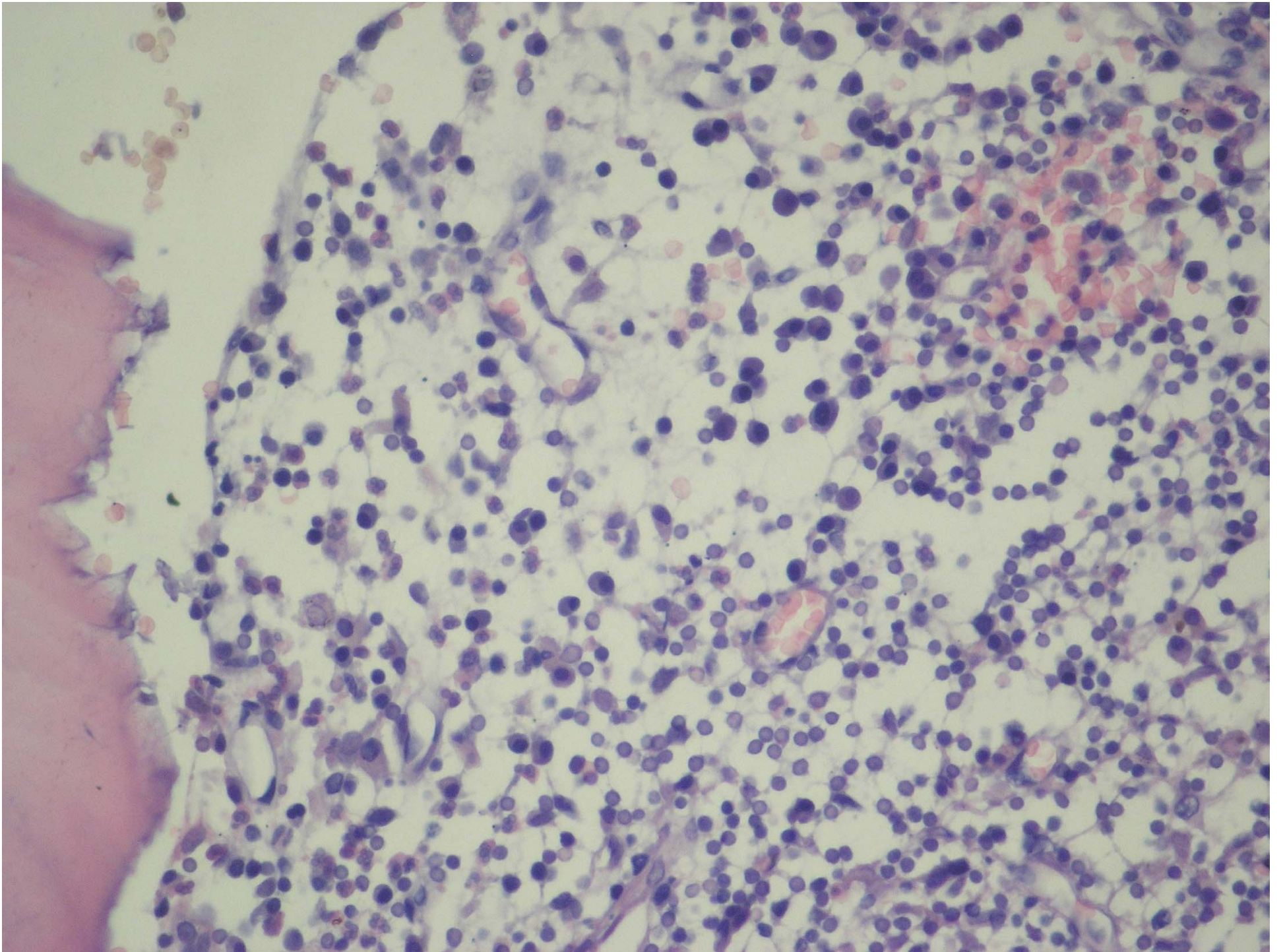


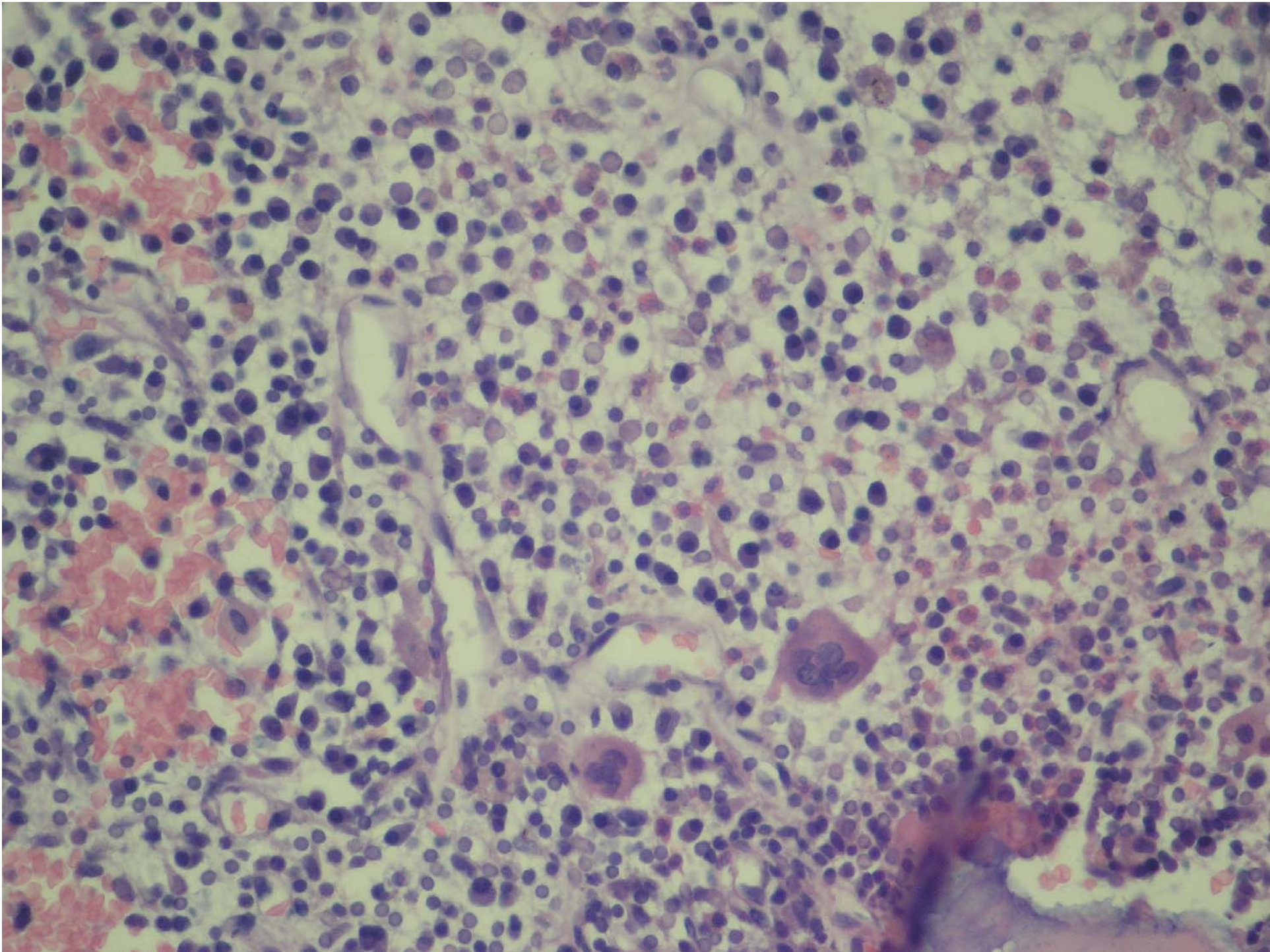


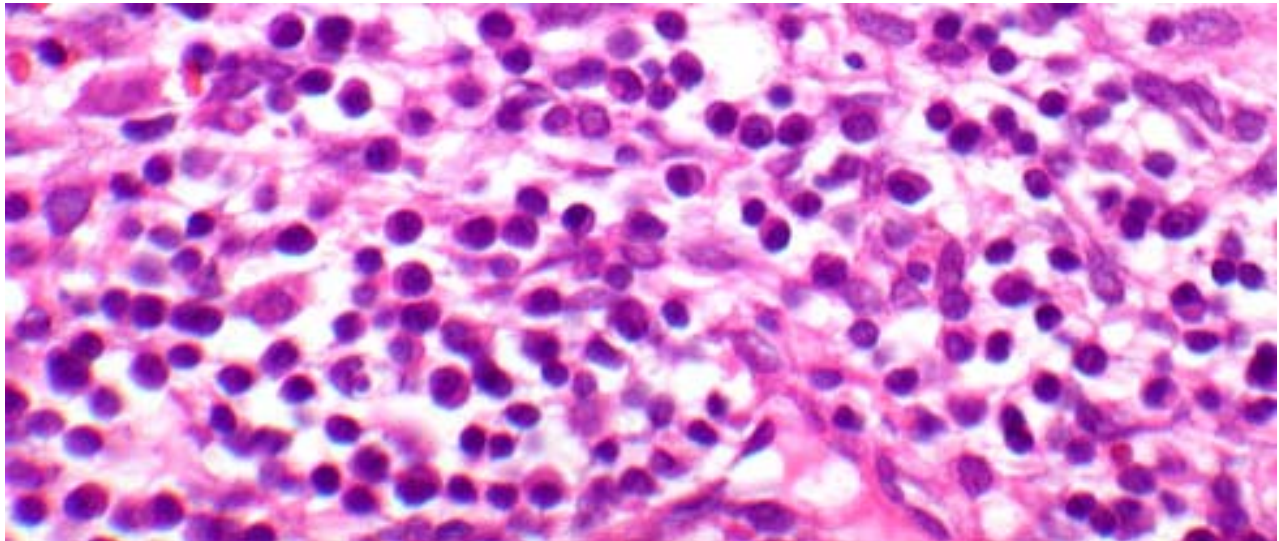
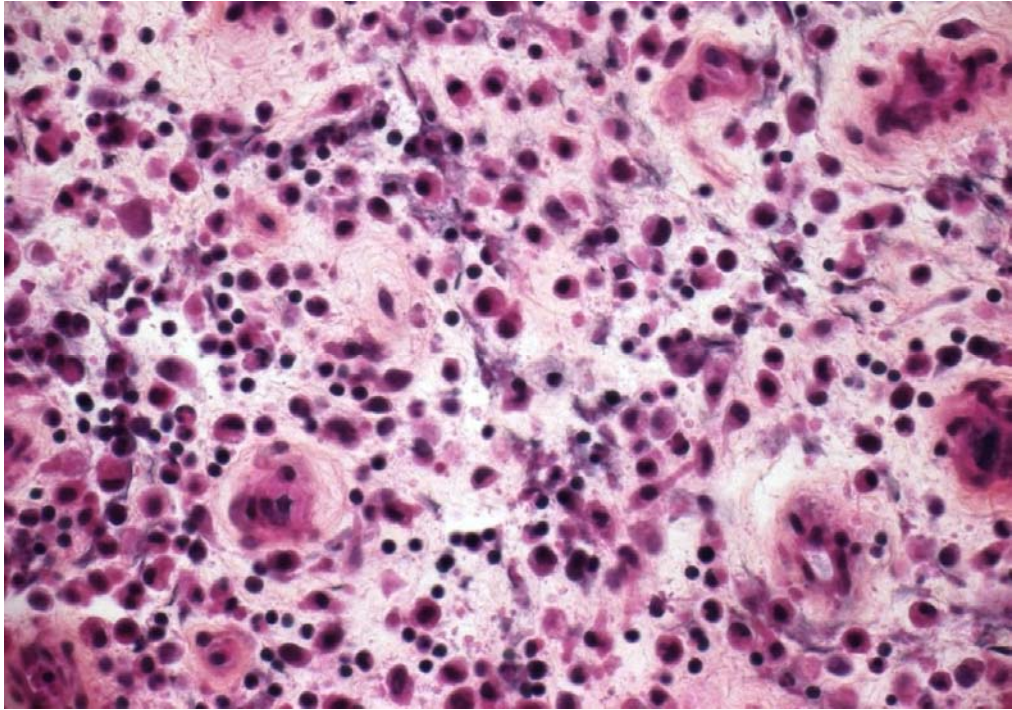
Gram boyaması

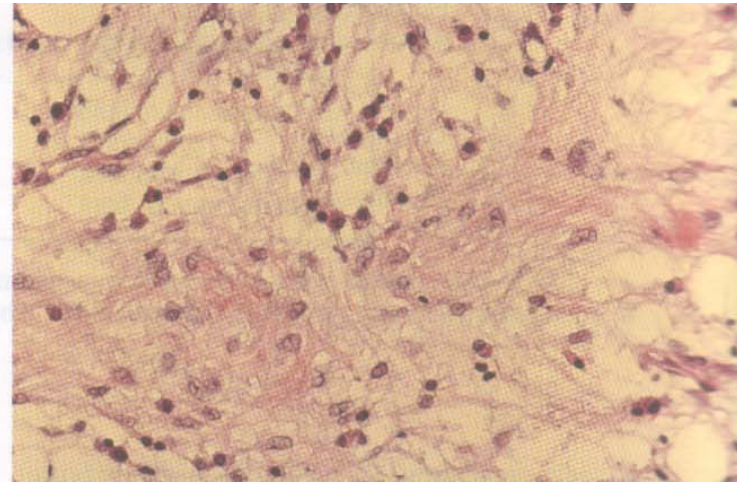
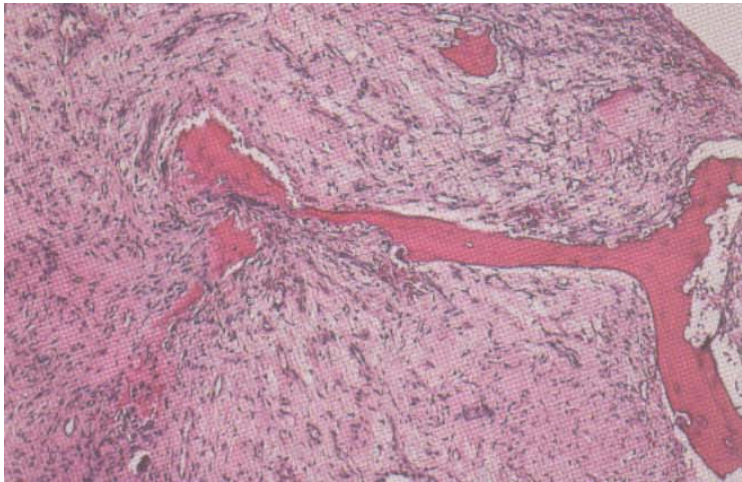
KRONİK

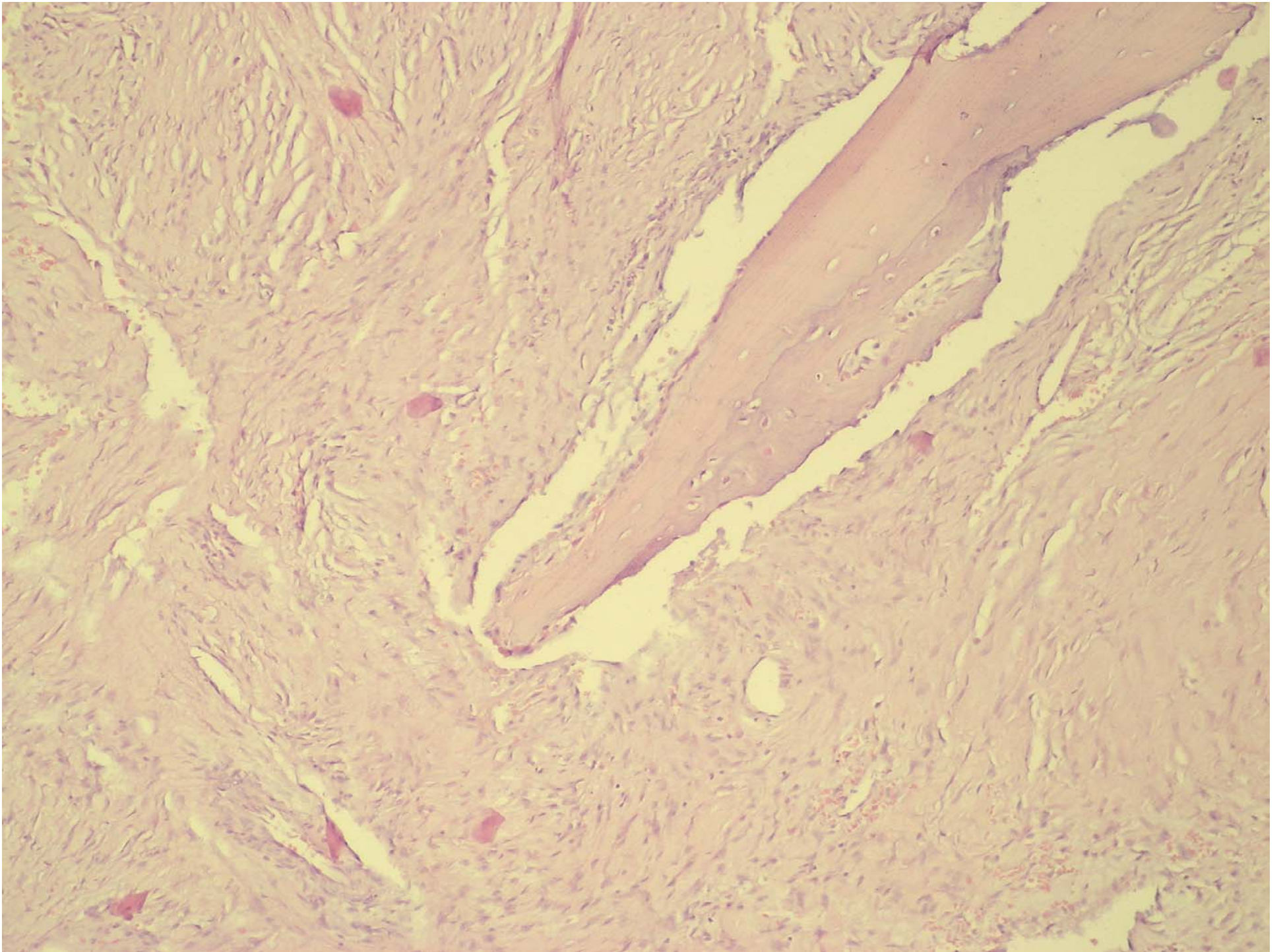
- Lenfositler, plazma hücreleri, makrofajlar
- Fibrozis
- Osteoklastik aktivite
- Kavite
- Sekestrum
- İnvolutrum
- Fistül

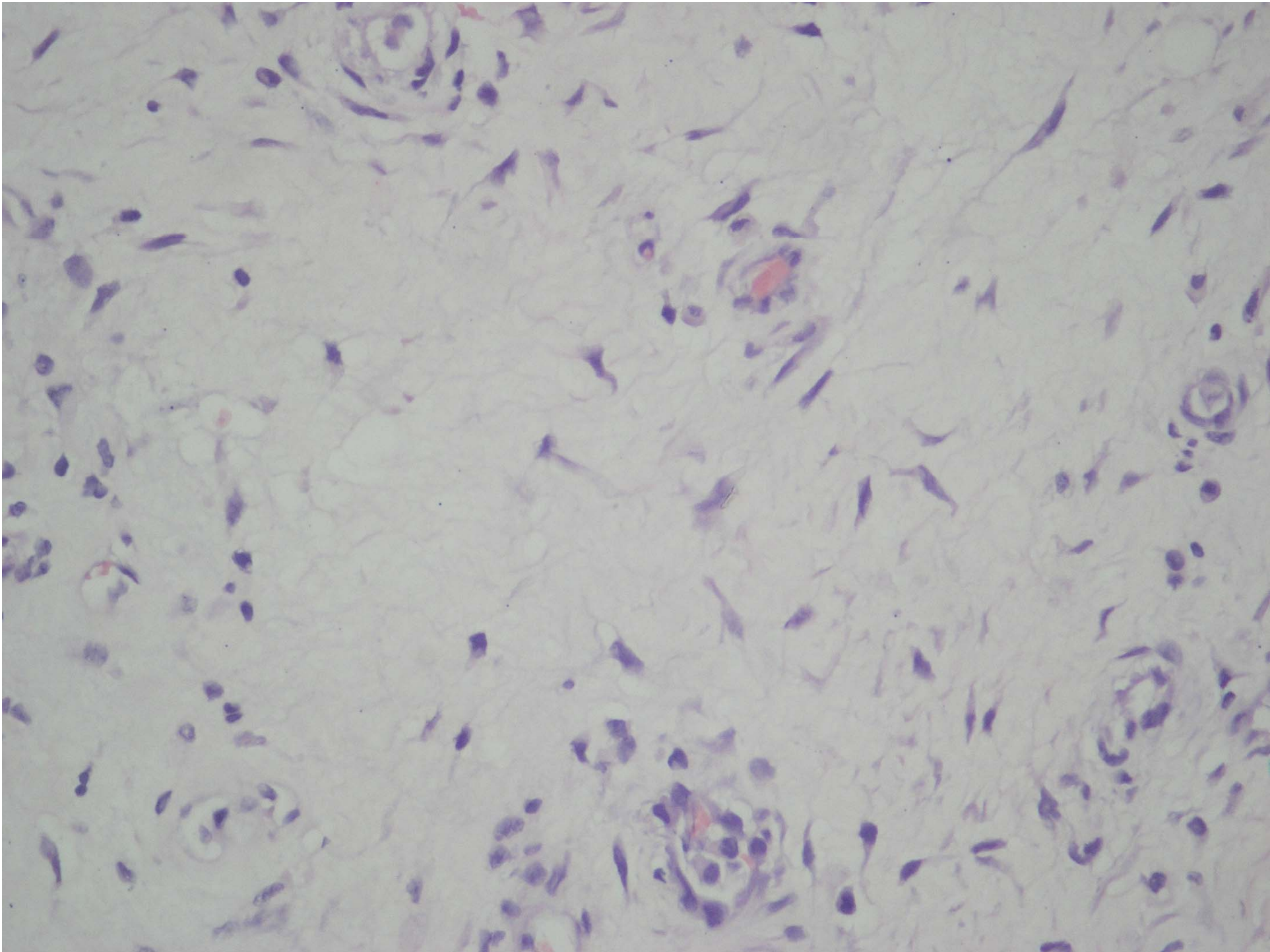


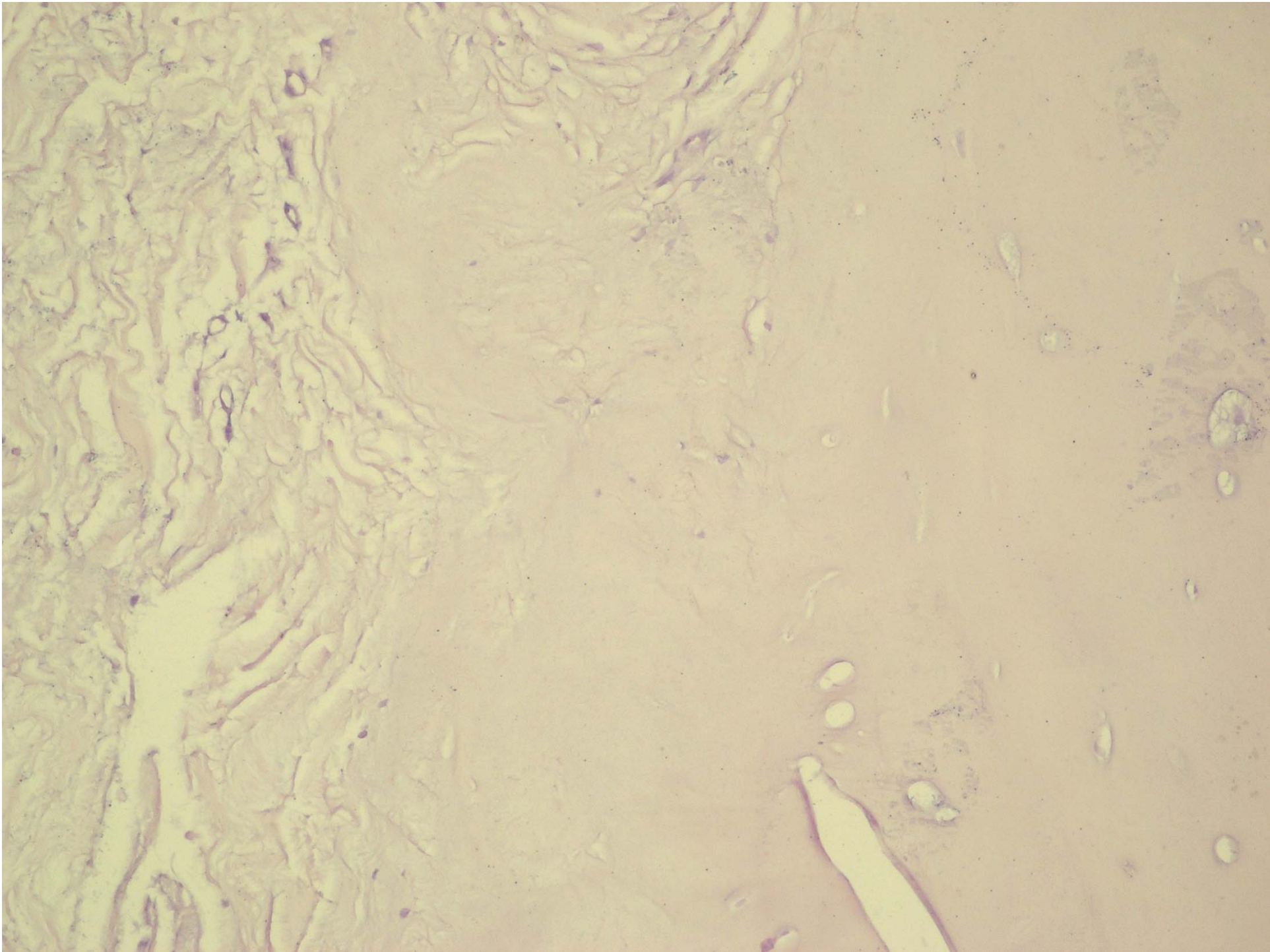


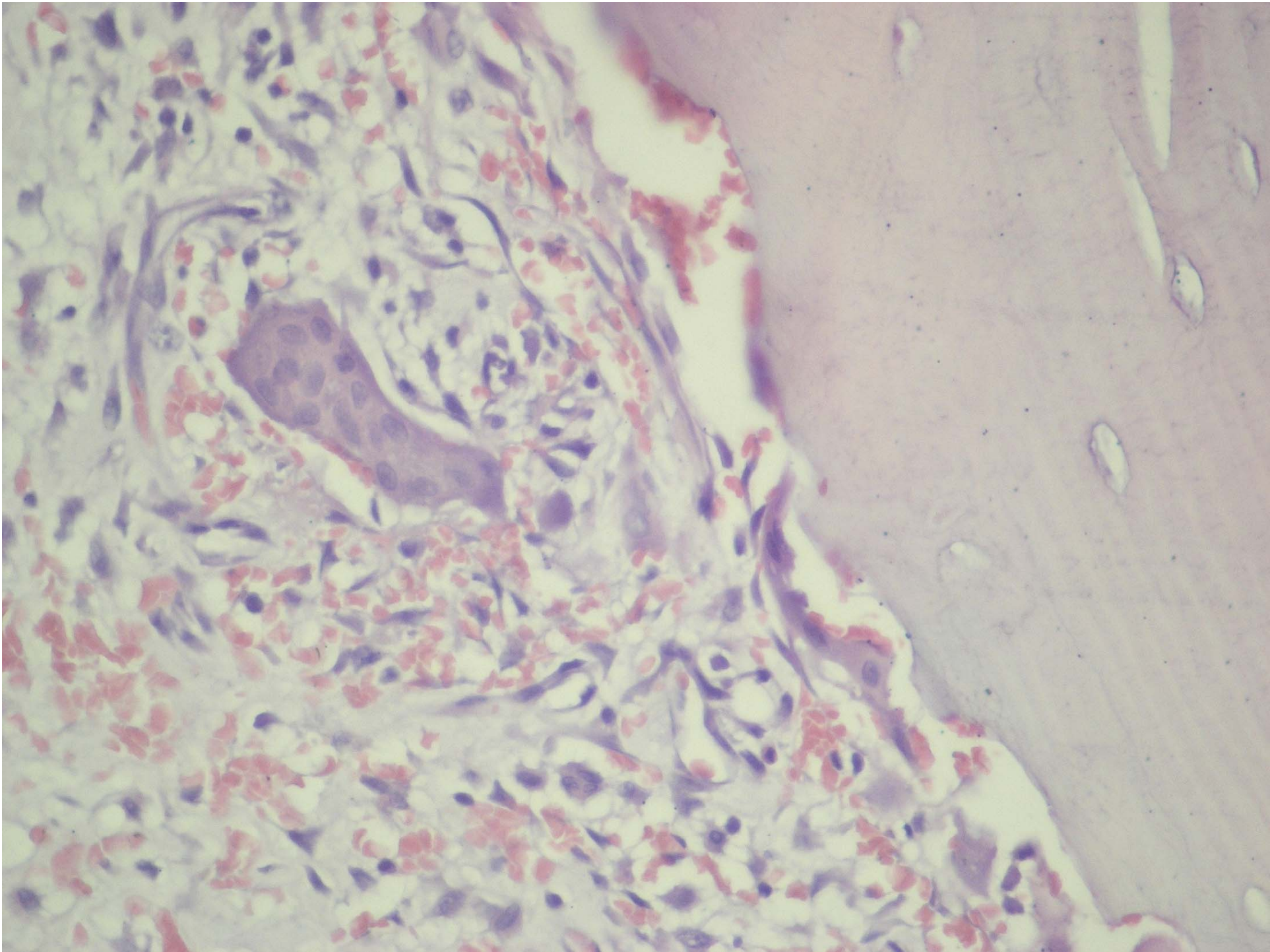


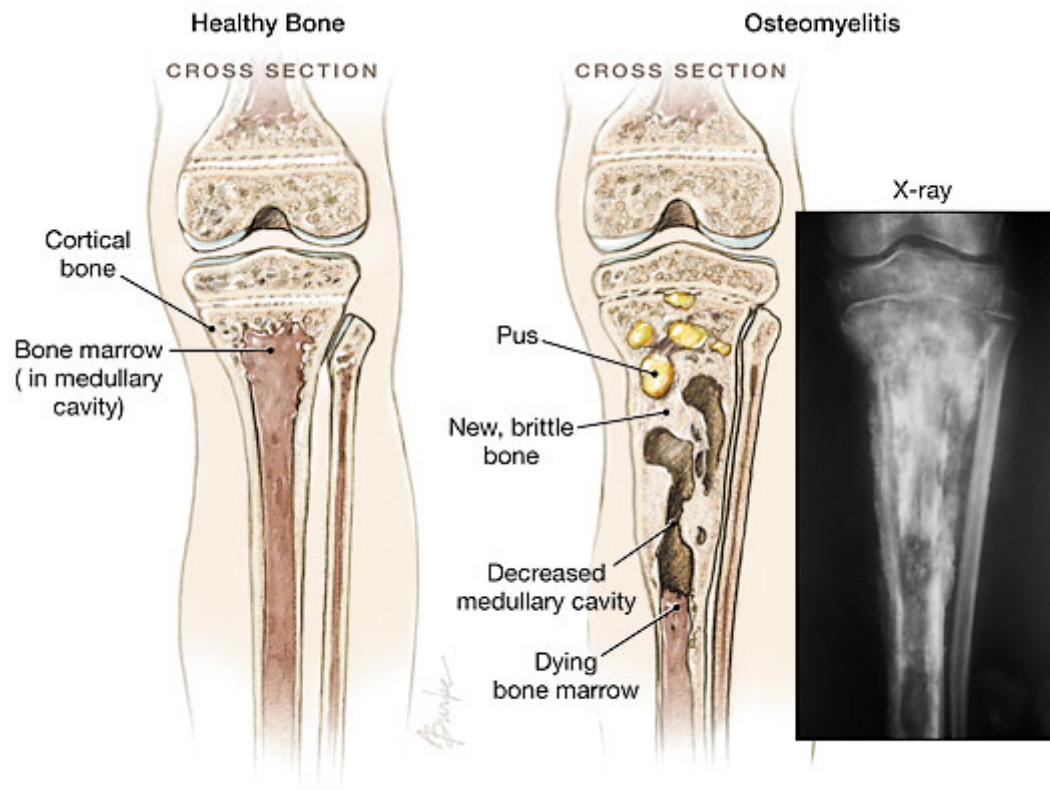


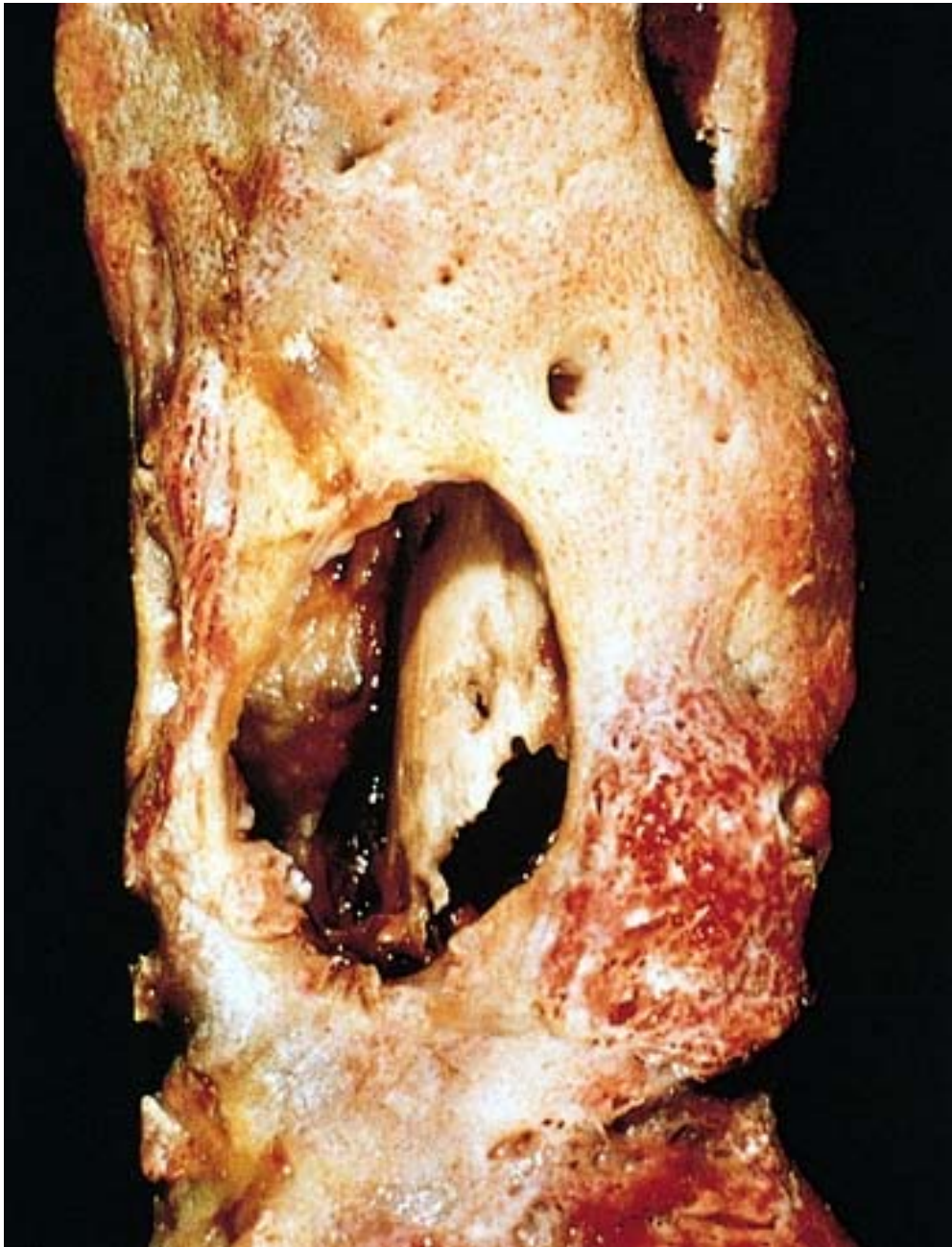




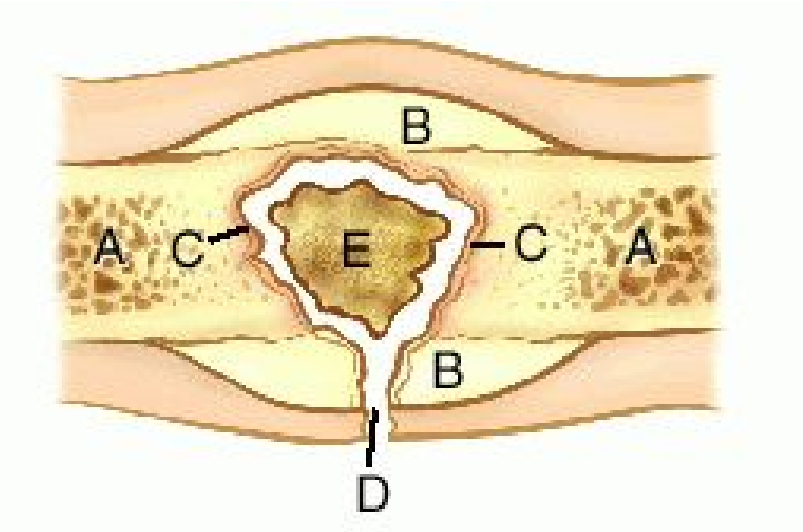


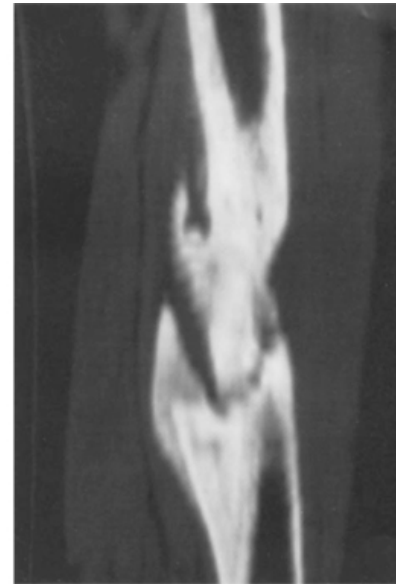




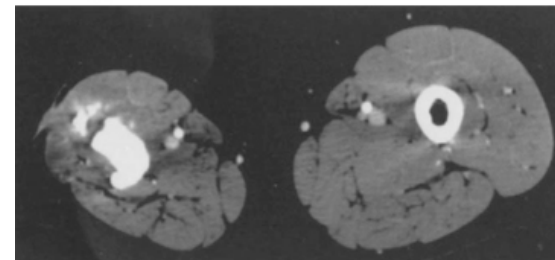


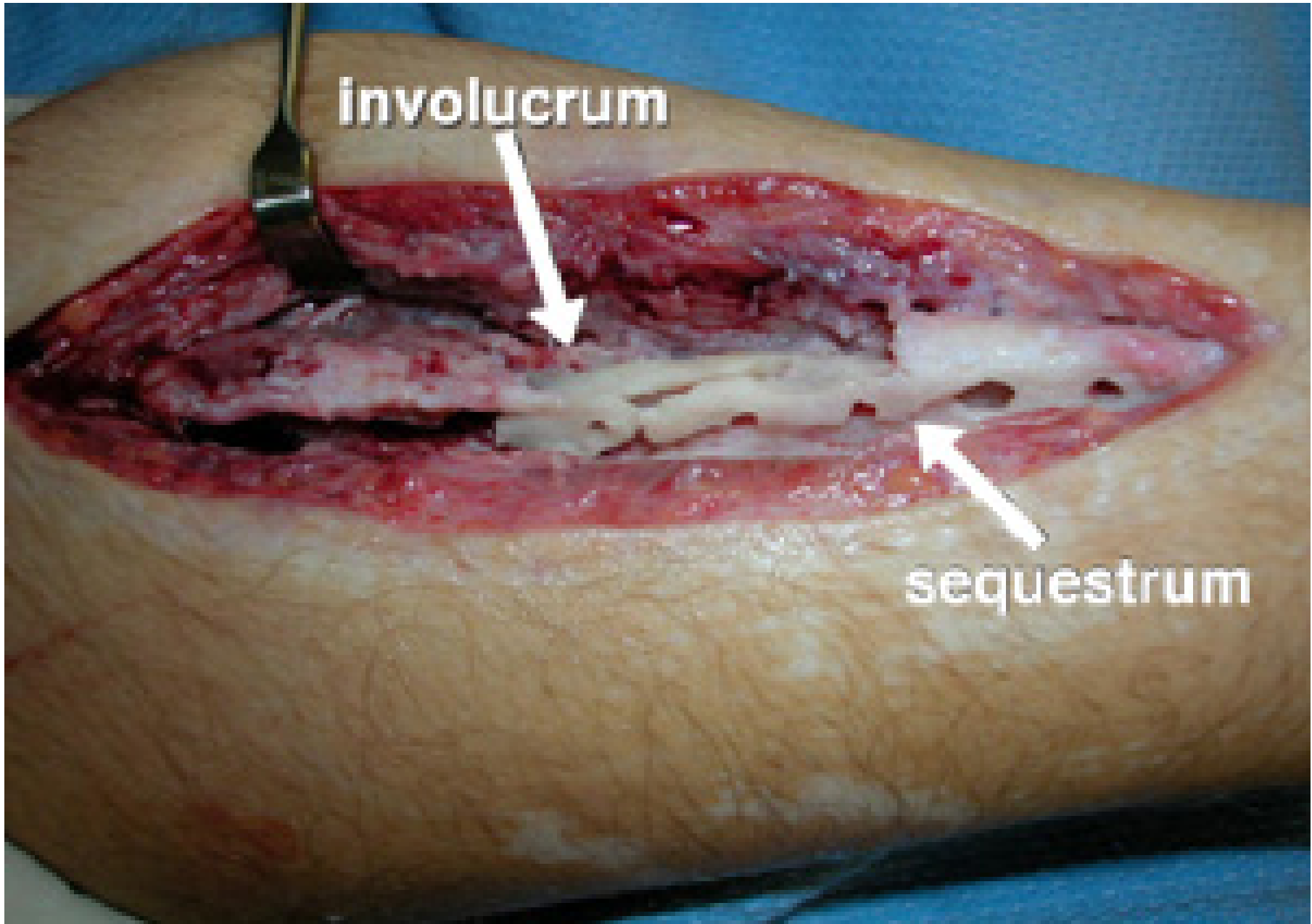
Sekestrum





A

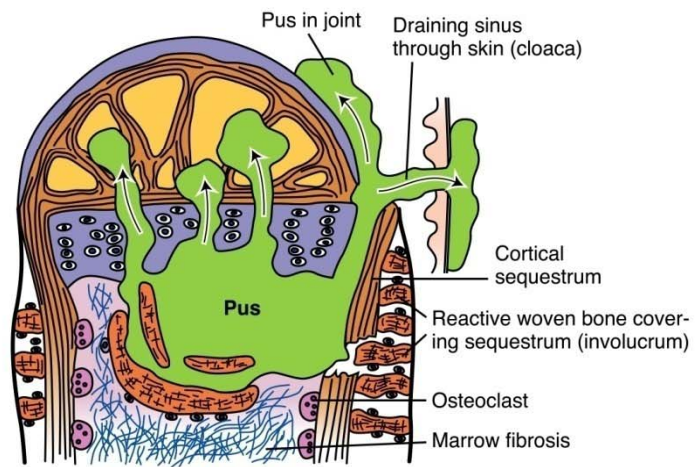
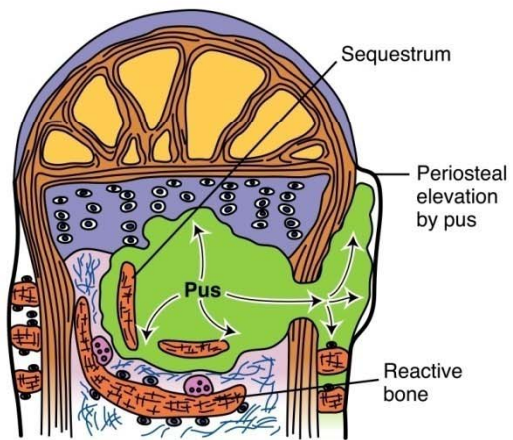
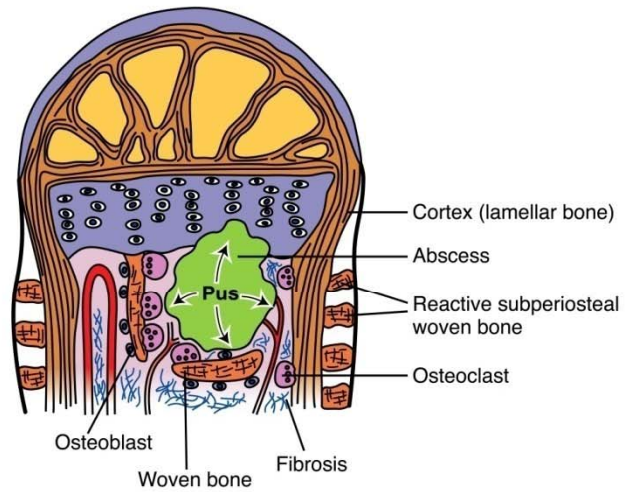
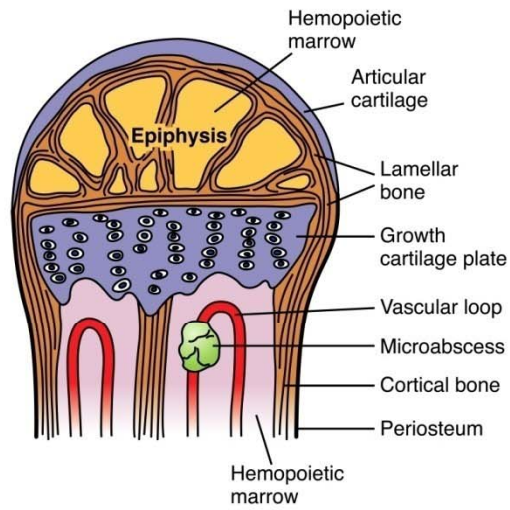


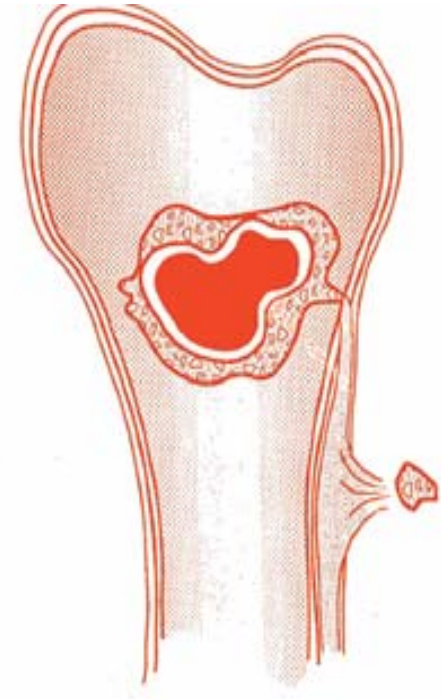
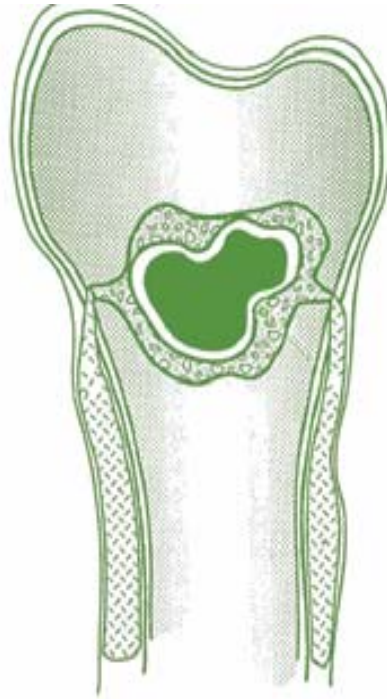
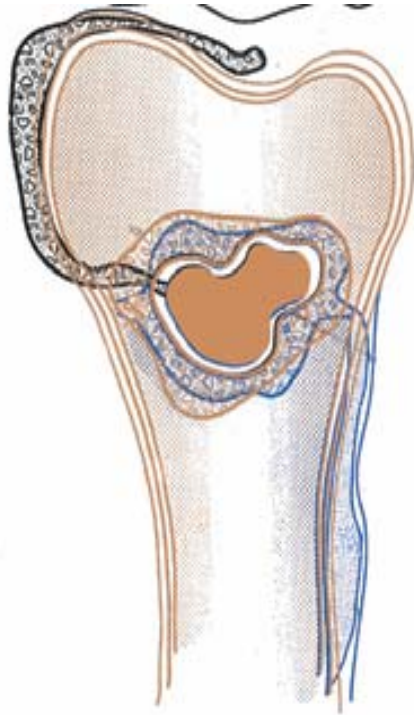


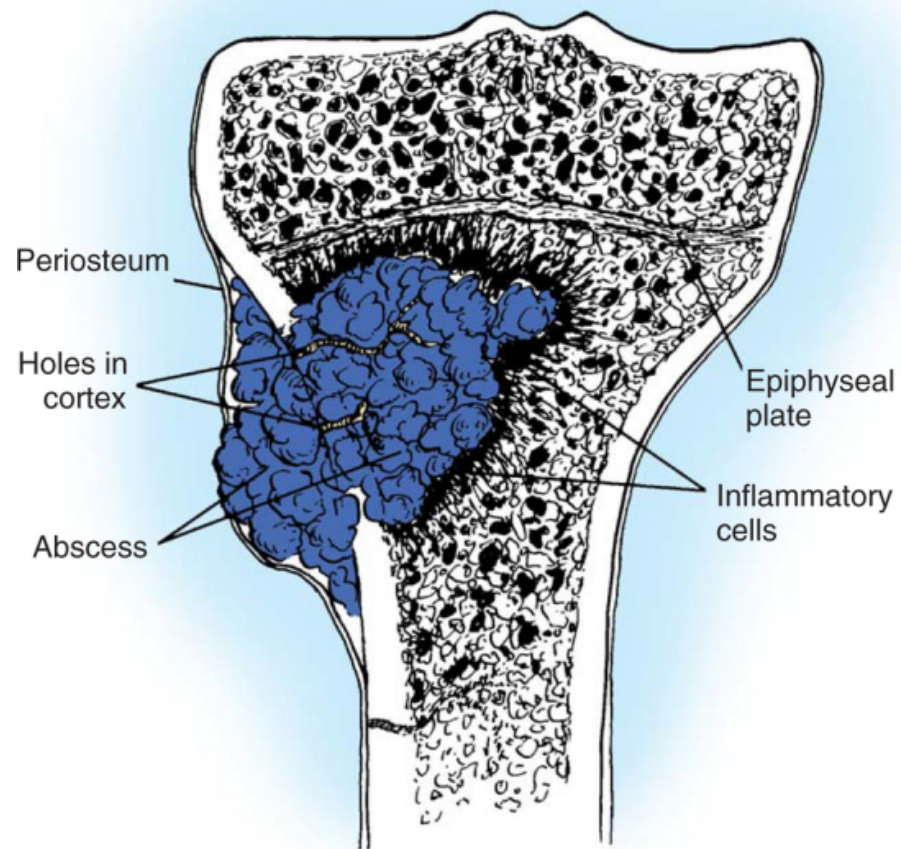
involucrum

sequestrum



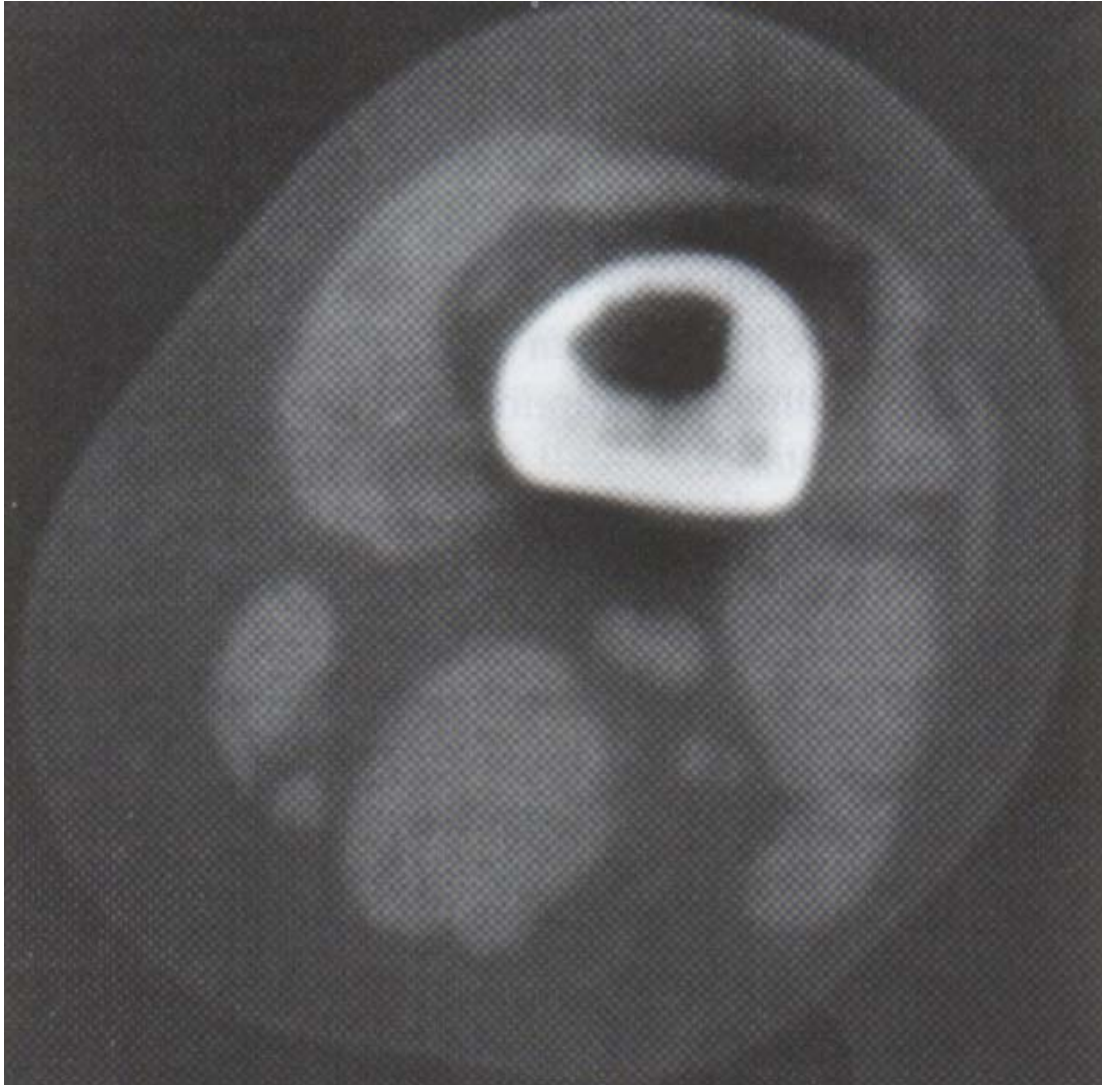


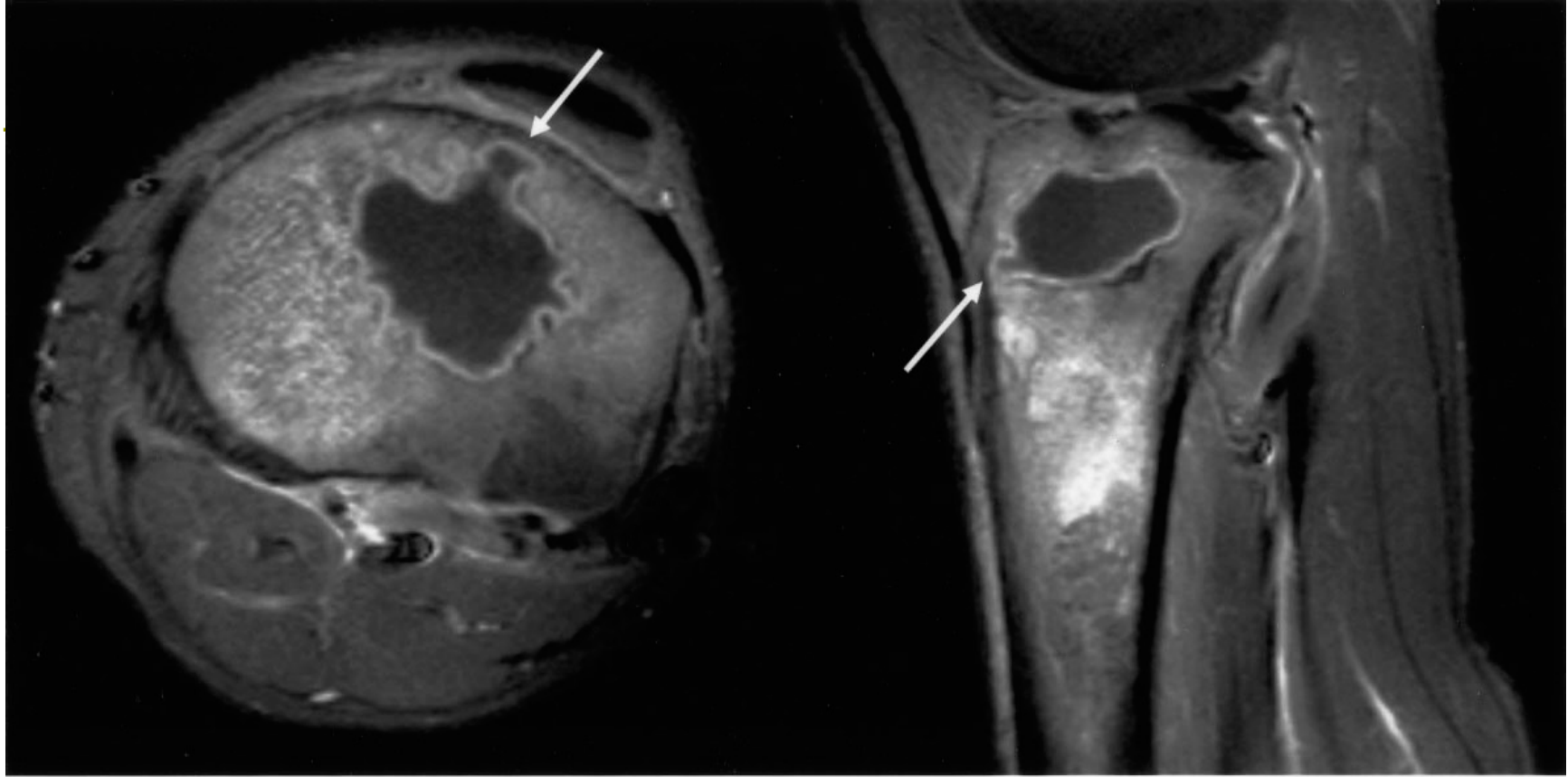




BRODIE ABSESİ

- Kronik pyojenik osteomyelitin uzun kemiklere **lokalize** formu
- Tibiada
- **Tümörle karıştırılabilir**
- % 50 olguda *Staphylococcus aureus*
- Fibroblastik zeminde lenfosit, histiosit, plazma hücreleri





Brodie absesi rüptürü

AKUT

Nötrofiller

Ödem

Konjesyon

Tromboz

Nekrotik doku

KRONİK

Lenfositler

Plazma hc

Fibrozis

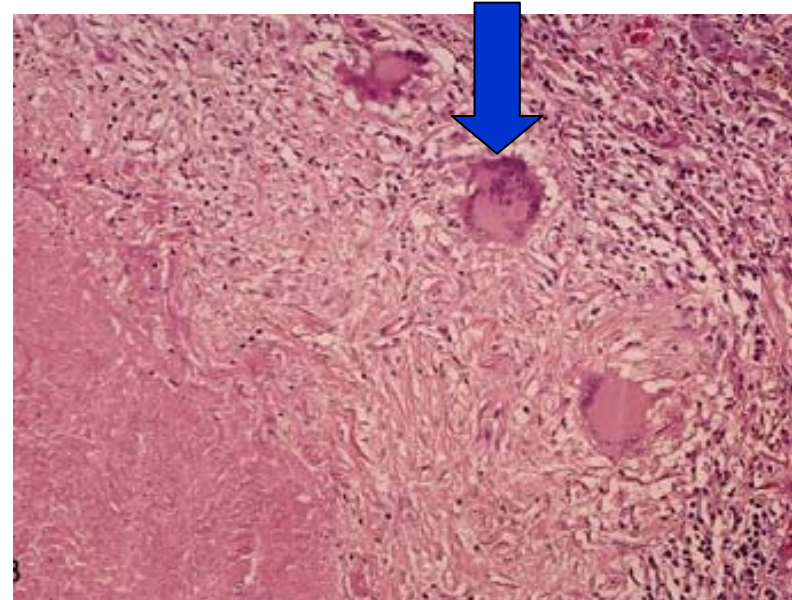
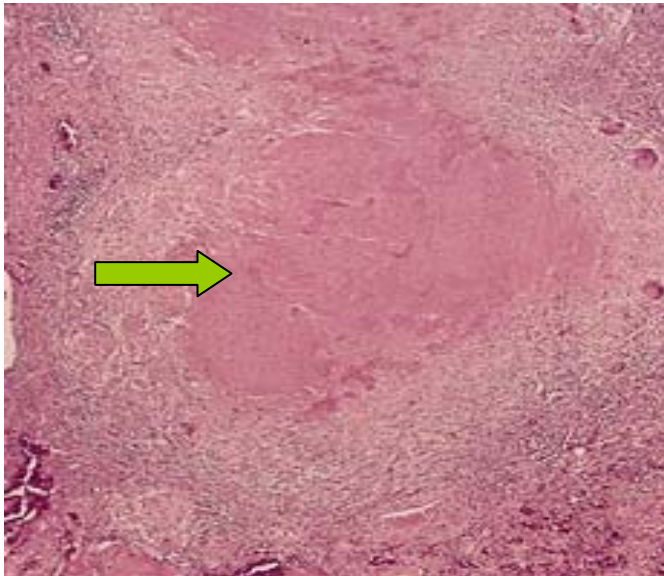
Sekestrum

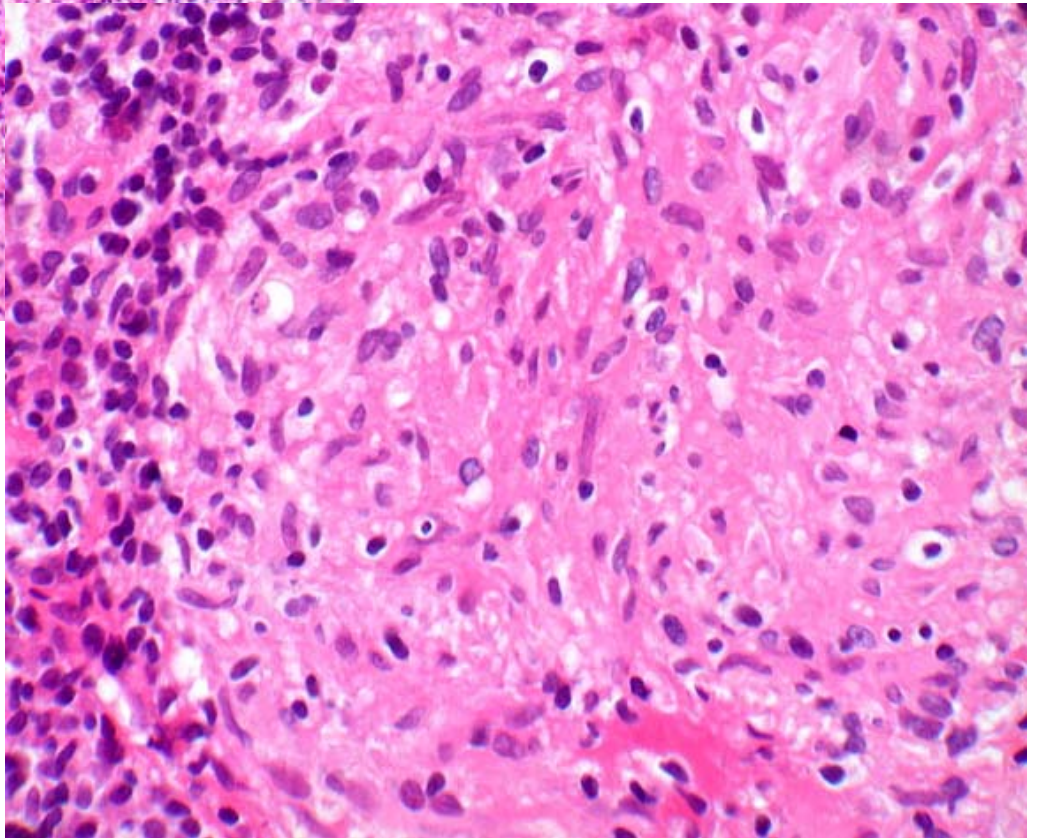
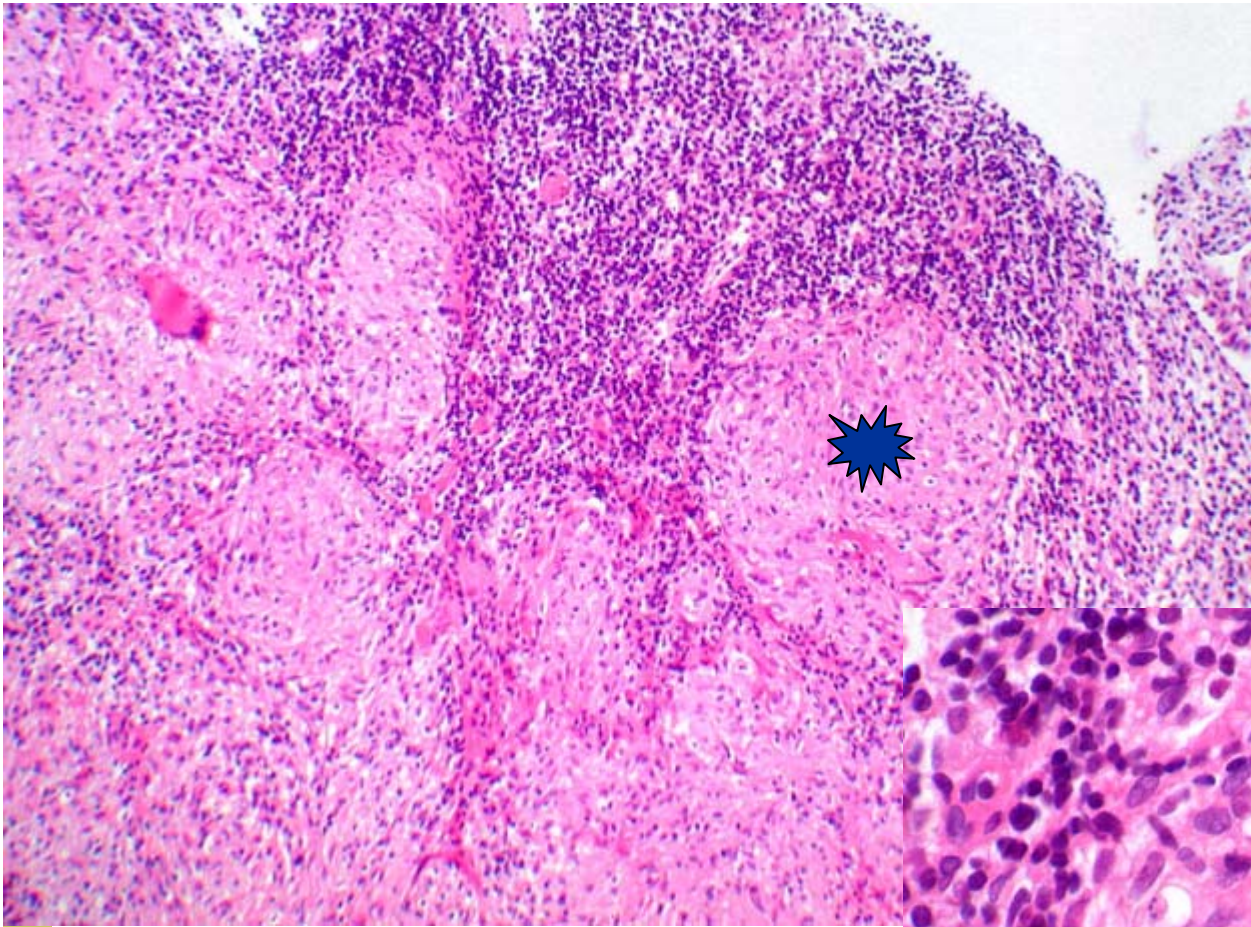
İnvolutrum

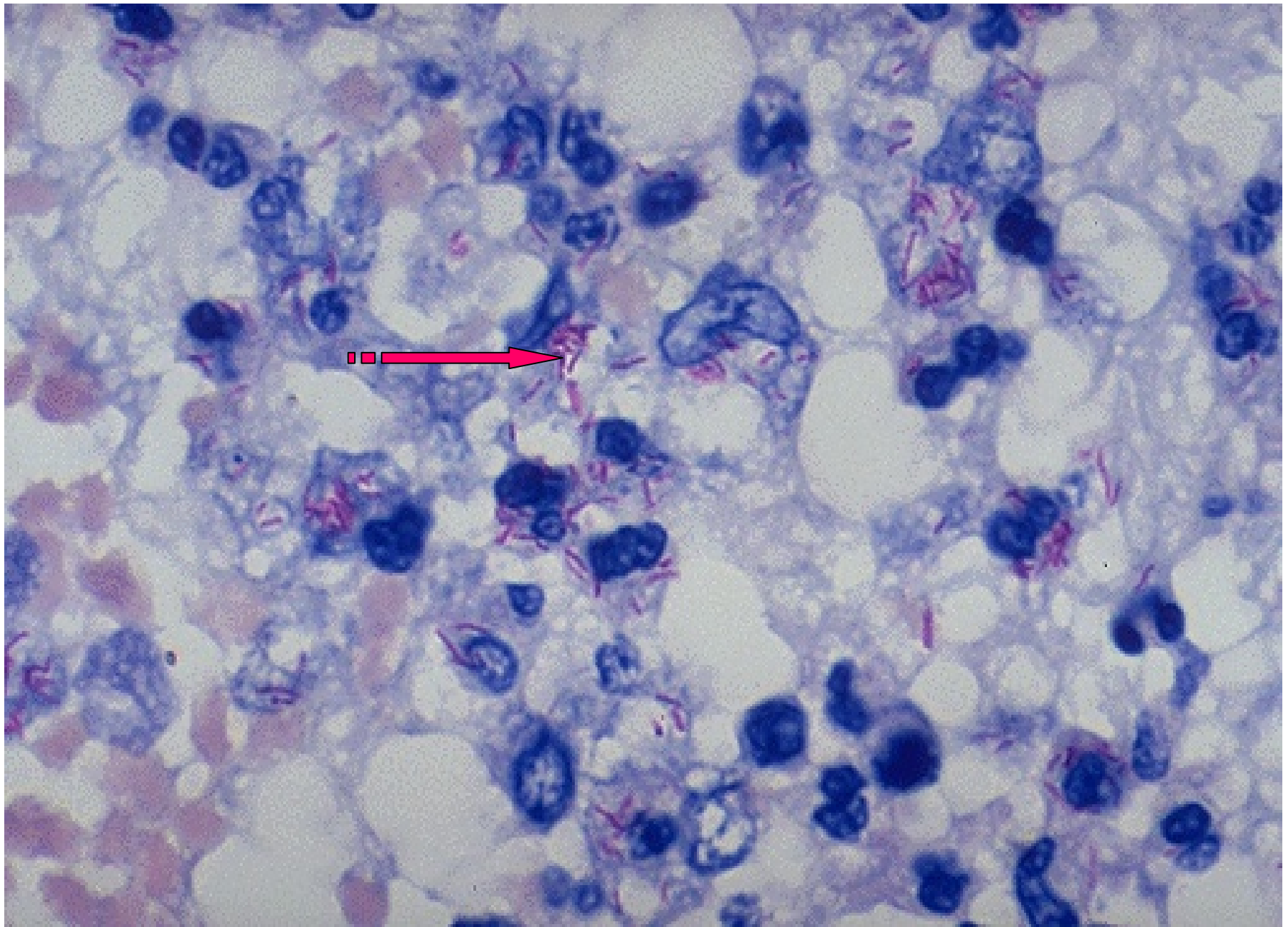
- 
-
- **Nonspesifik infeksiyon**
 - **Spesifik infeksiyon**

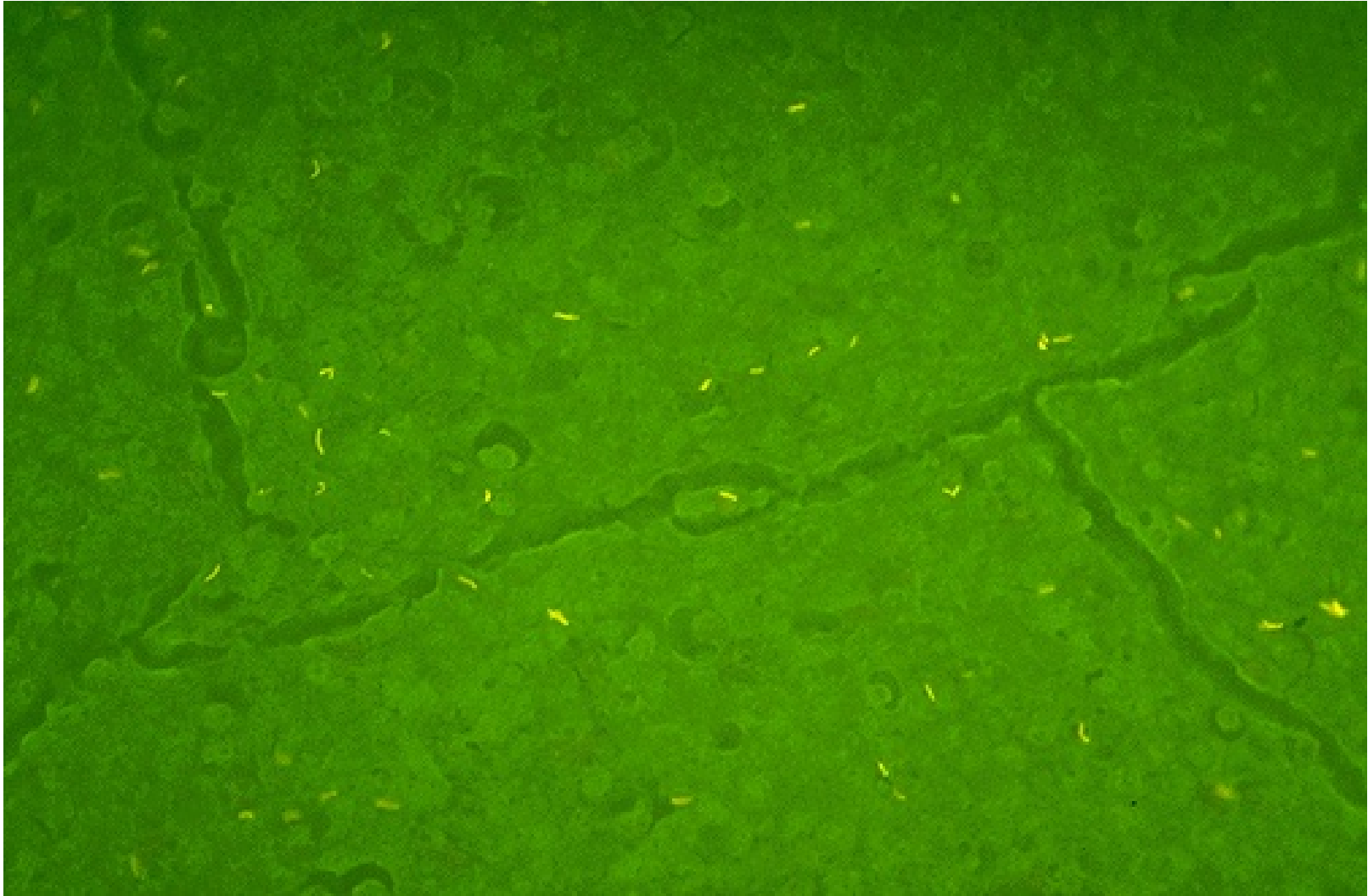
TÜBERKÜLOZ OSTEOMYELITİ

- Granulomatöz inflamasyon
- Mononükleer hücreler
- Epiteloid histiositler
- Dev hücreler (Langhans tipi)
- Kazeifikasyon nekrozu



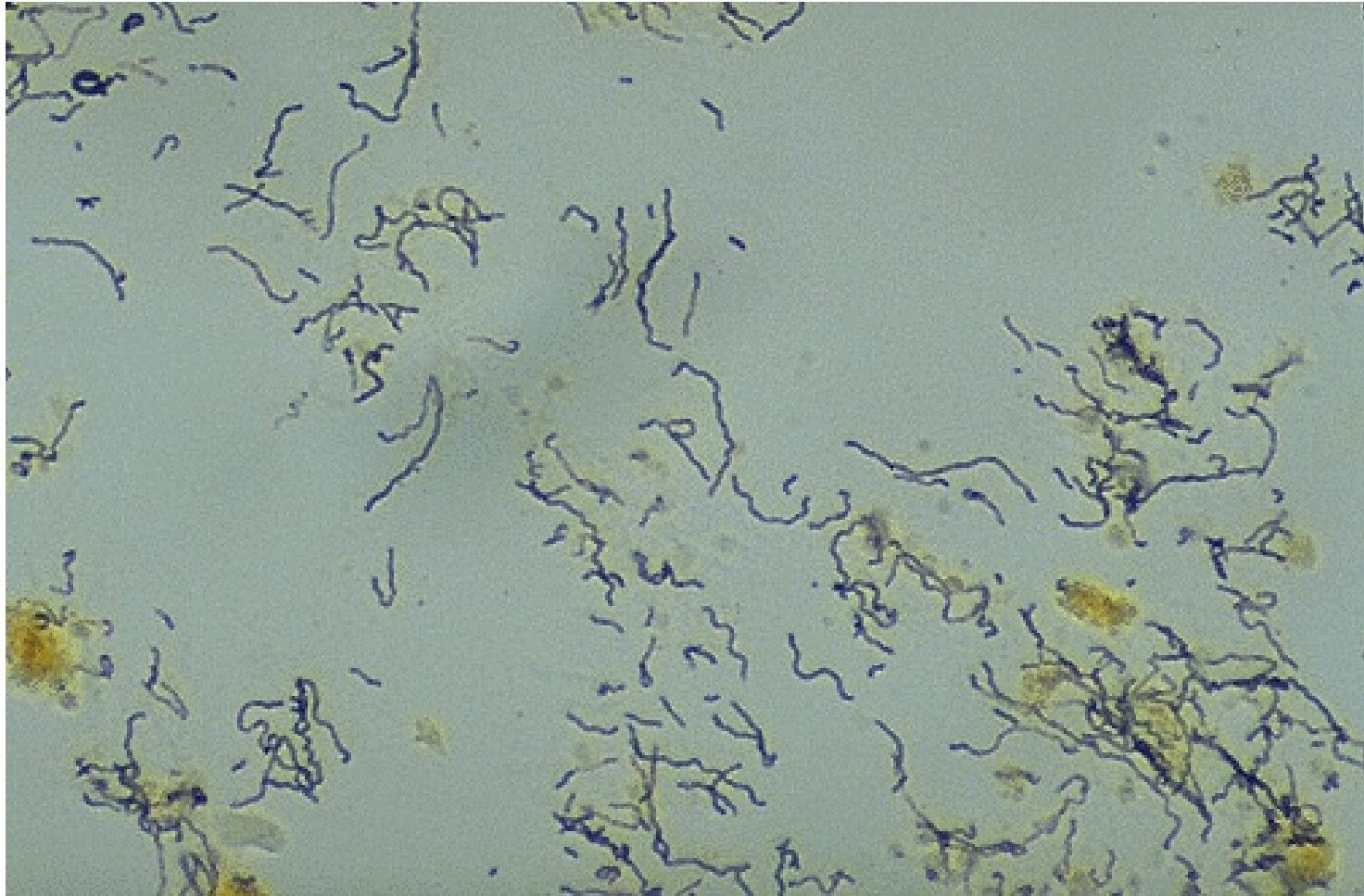






SİFİLİTİK OSTEOMYELIT

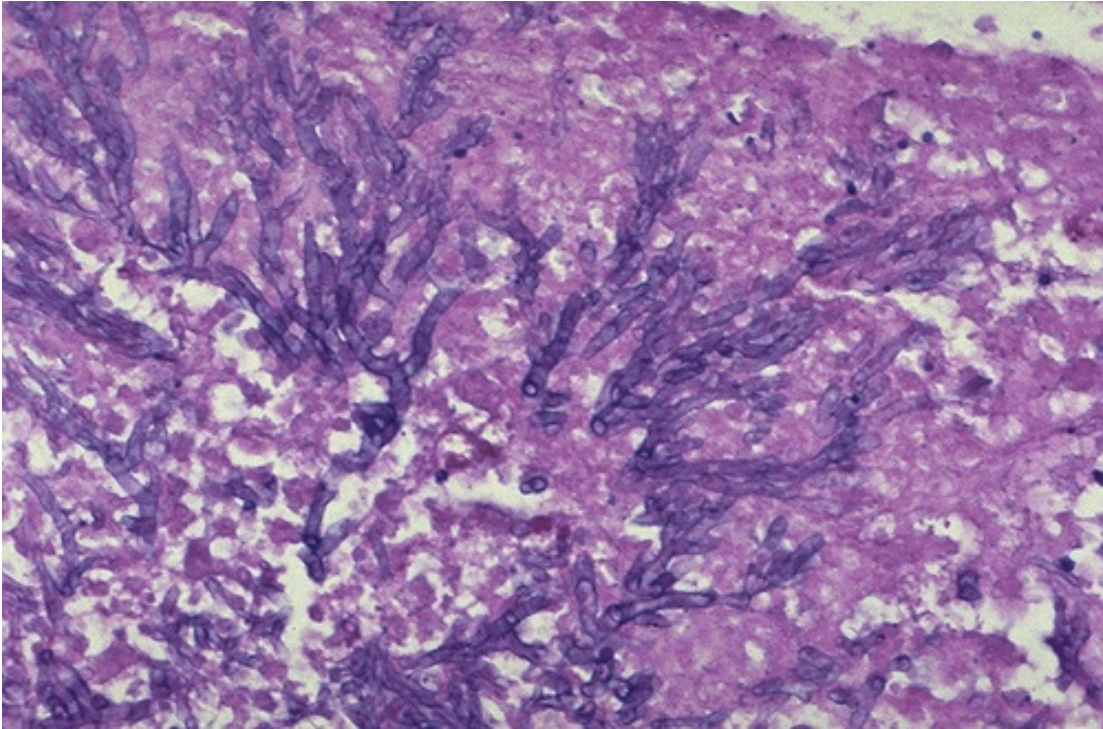
- Perivaskuler plazma hücre infiltrasyonu
- Endarterit
- Spiroketler nadiren mikroskopik olarak Warthin-Starry gümüşleme boyasıyla görülebilir



FUNGAL OSTEOMYELIT

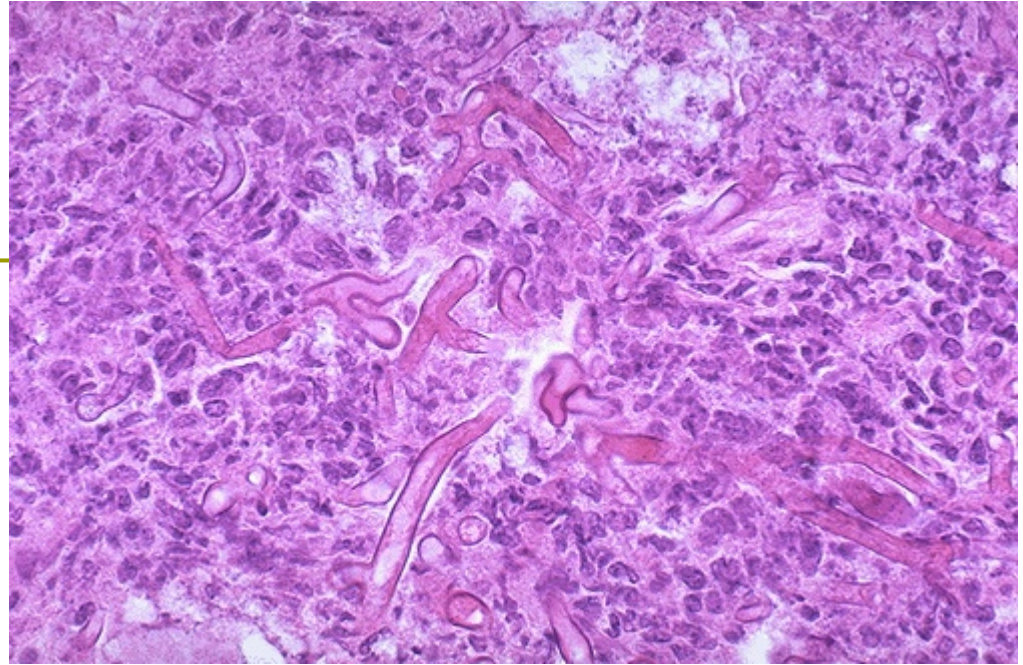
- **Kandidiazis**
- **Koksidiomikozis**
- **Blastomikozis**
- **Kriptokokkozis**
- **Sporotrikozis**
- **Aspergillozis**

- **Organizma mikroskobik olarak görülebilir**

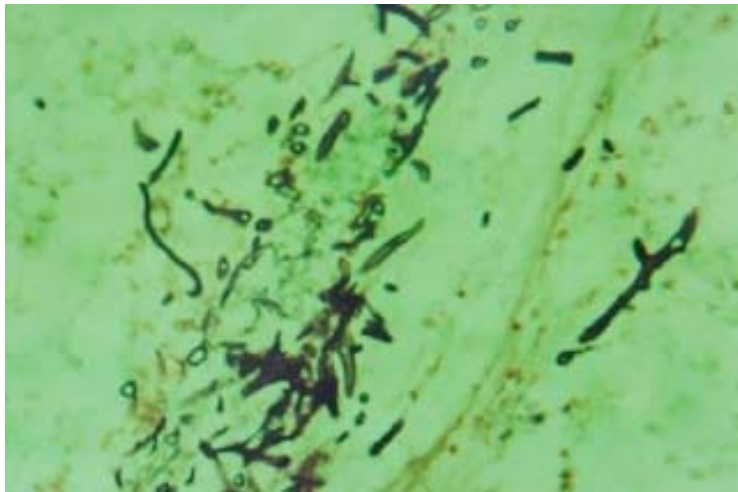


Aspergillus

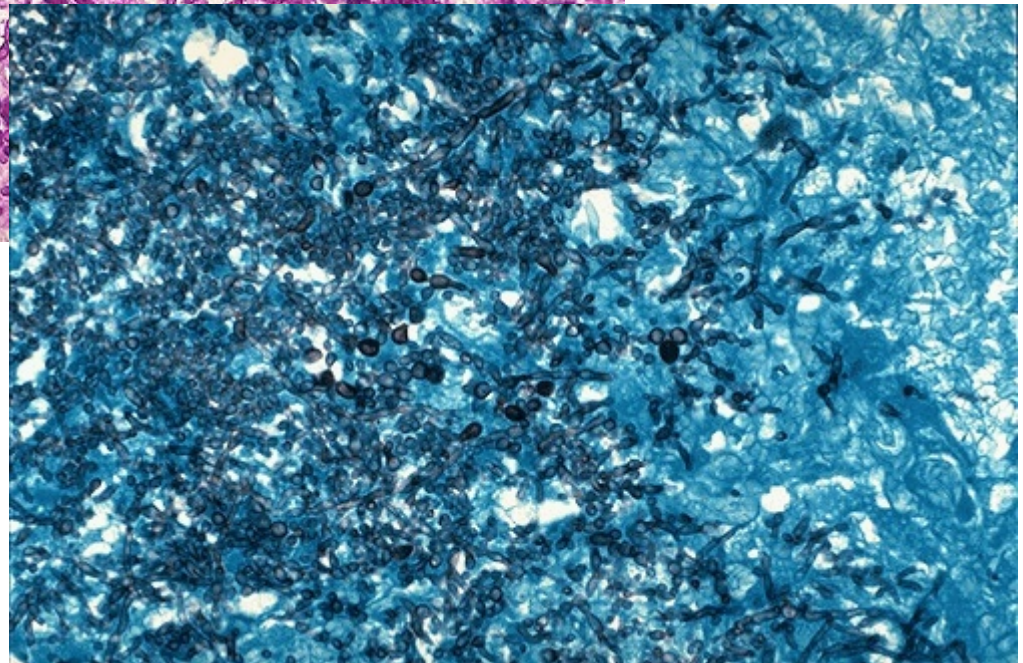
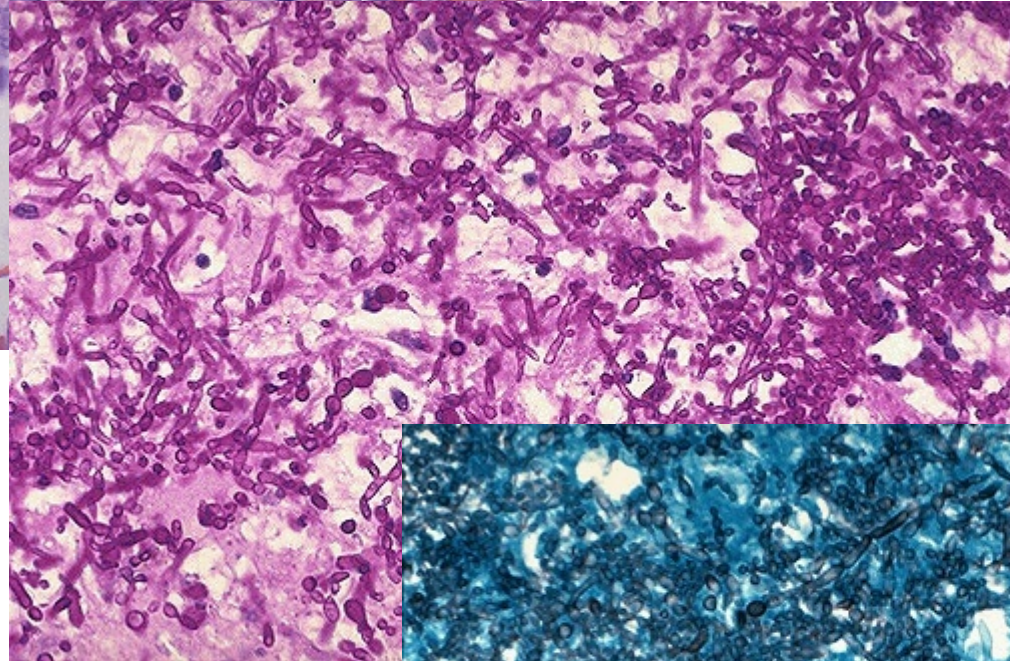
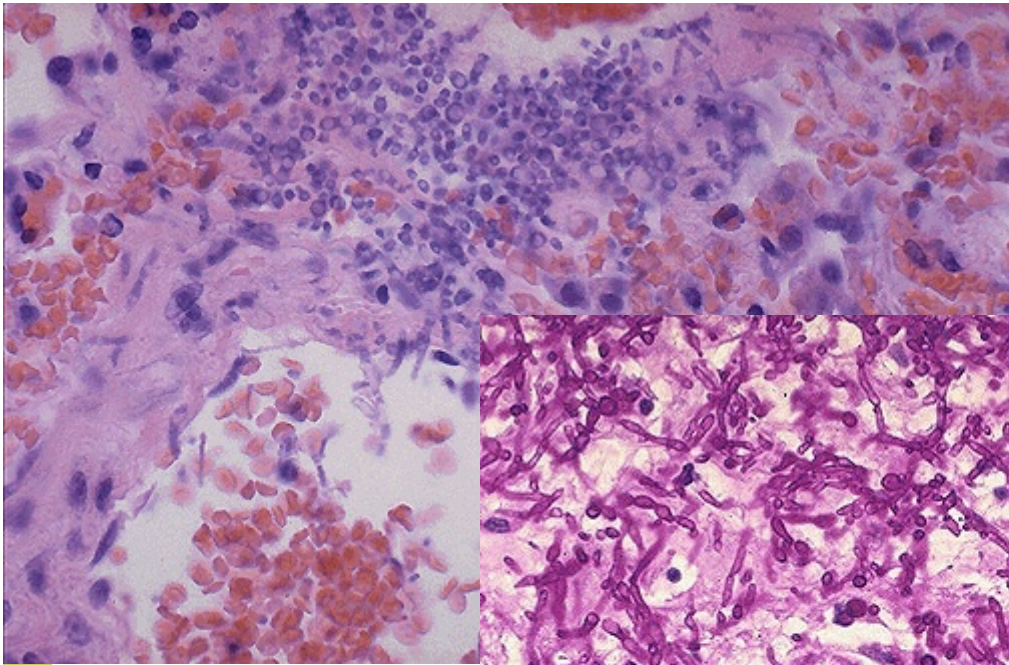




PAS



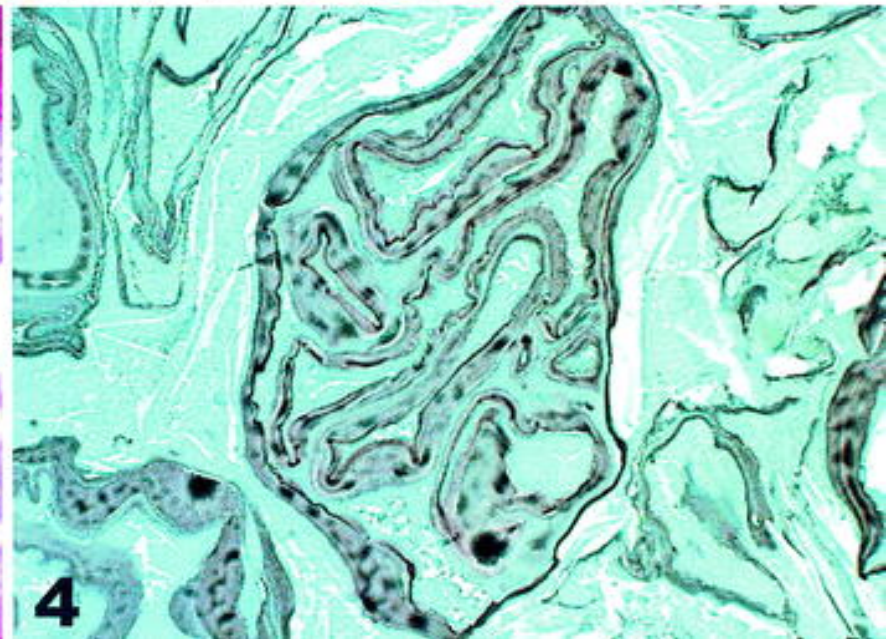
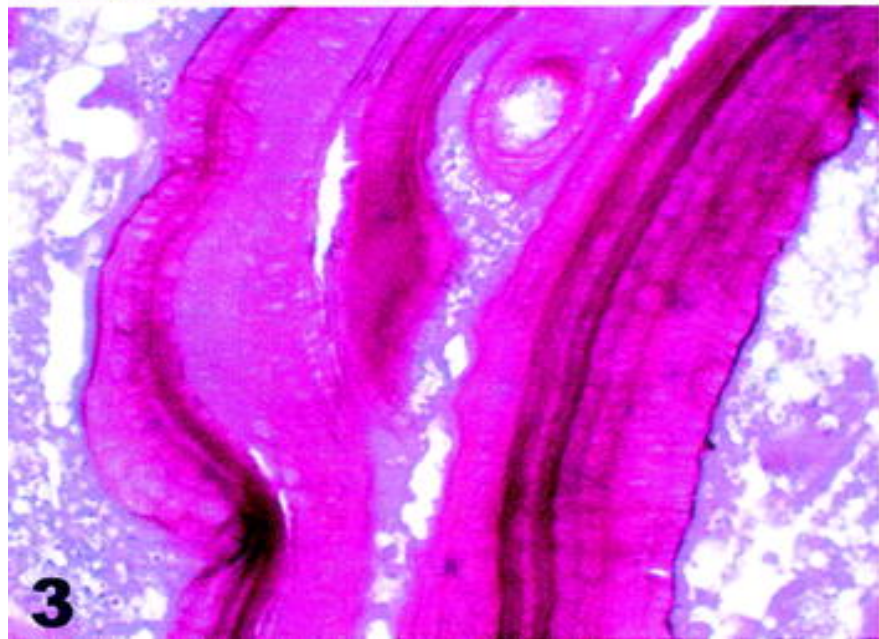
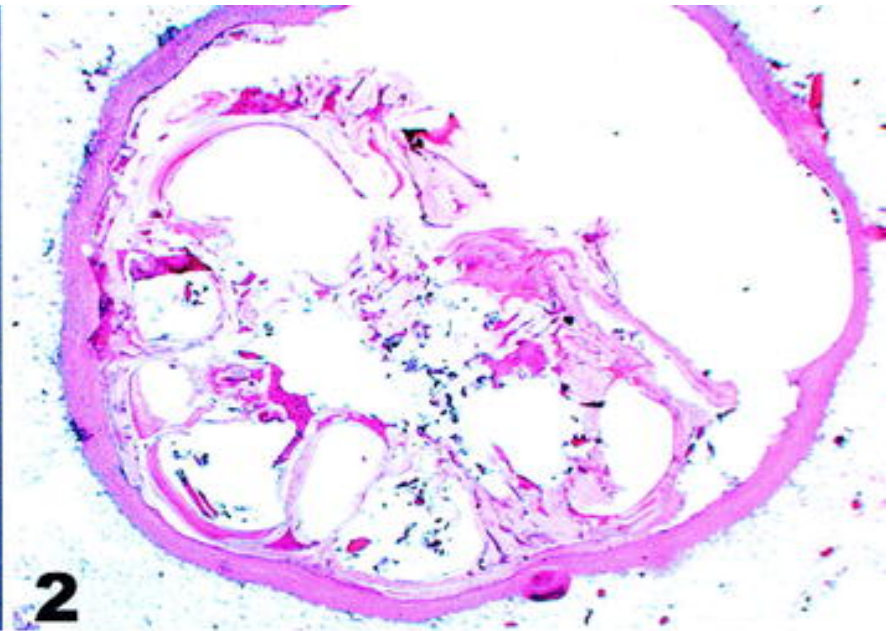
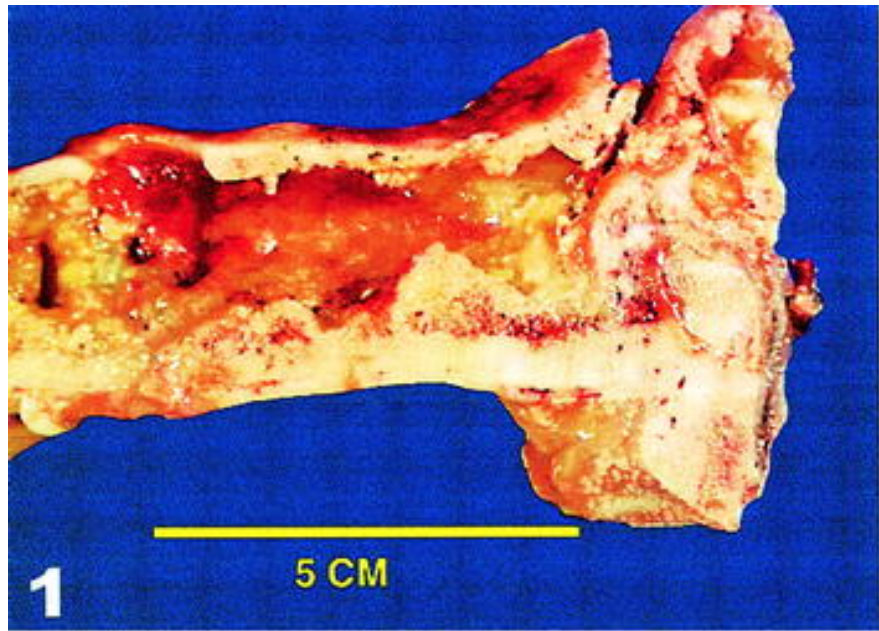
Methenamine silver/ septasız *mucormycotic* hifler



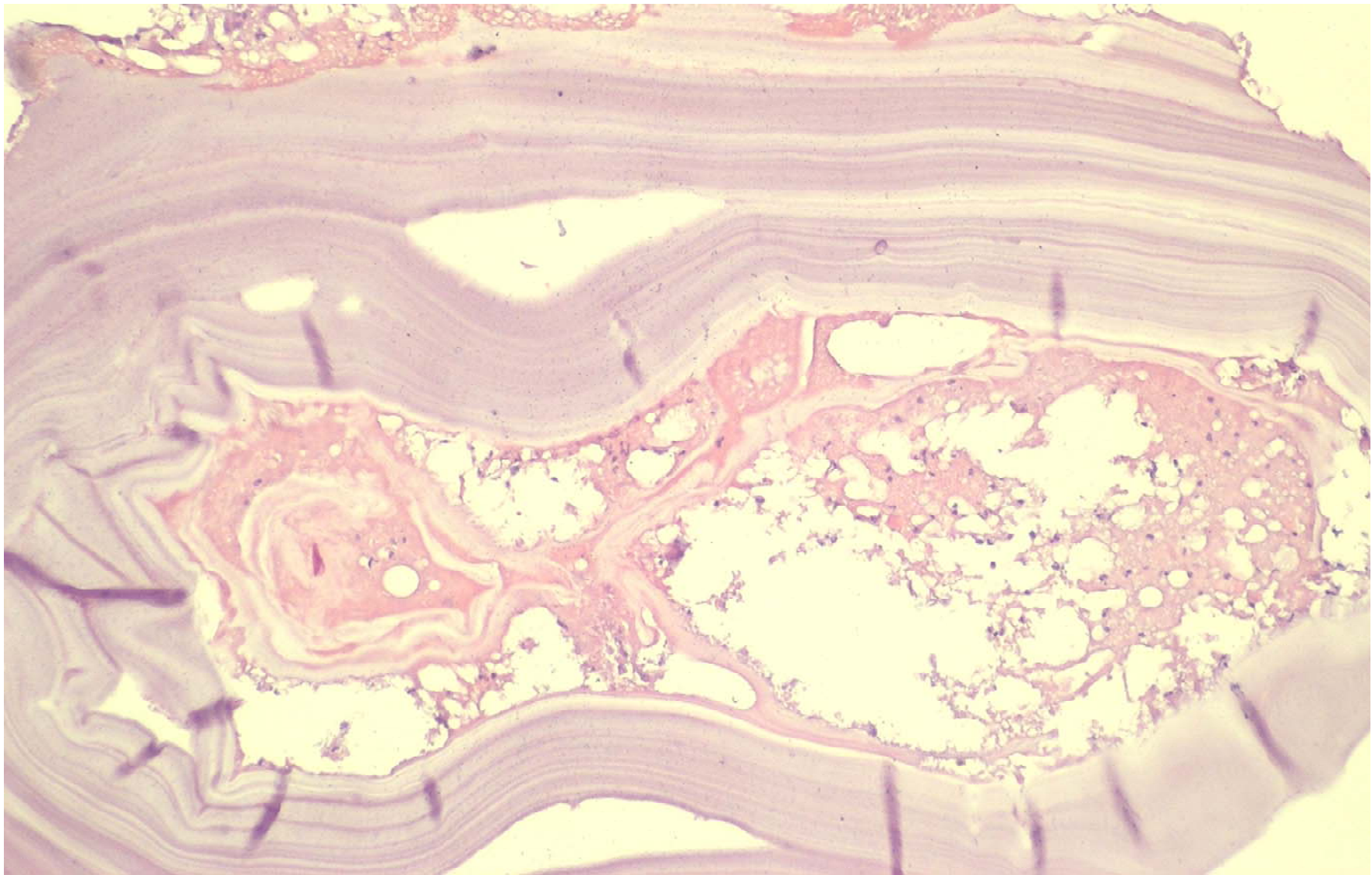
Candida

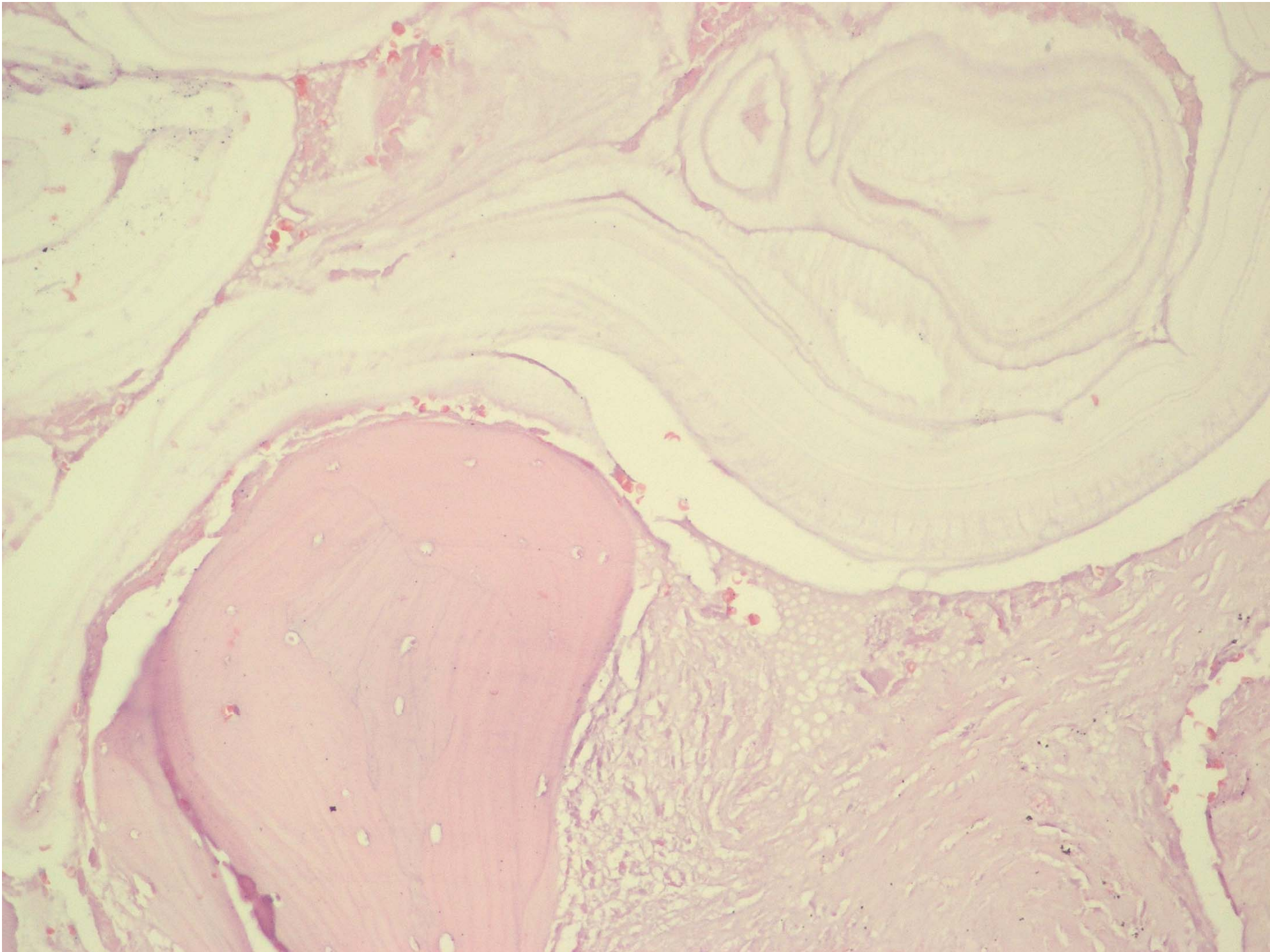
PARAZİTER OSTEOMYELIT

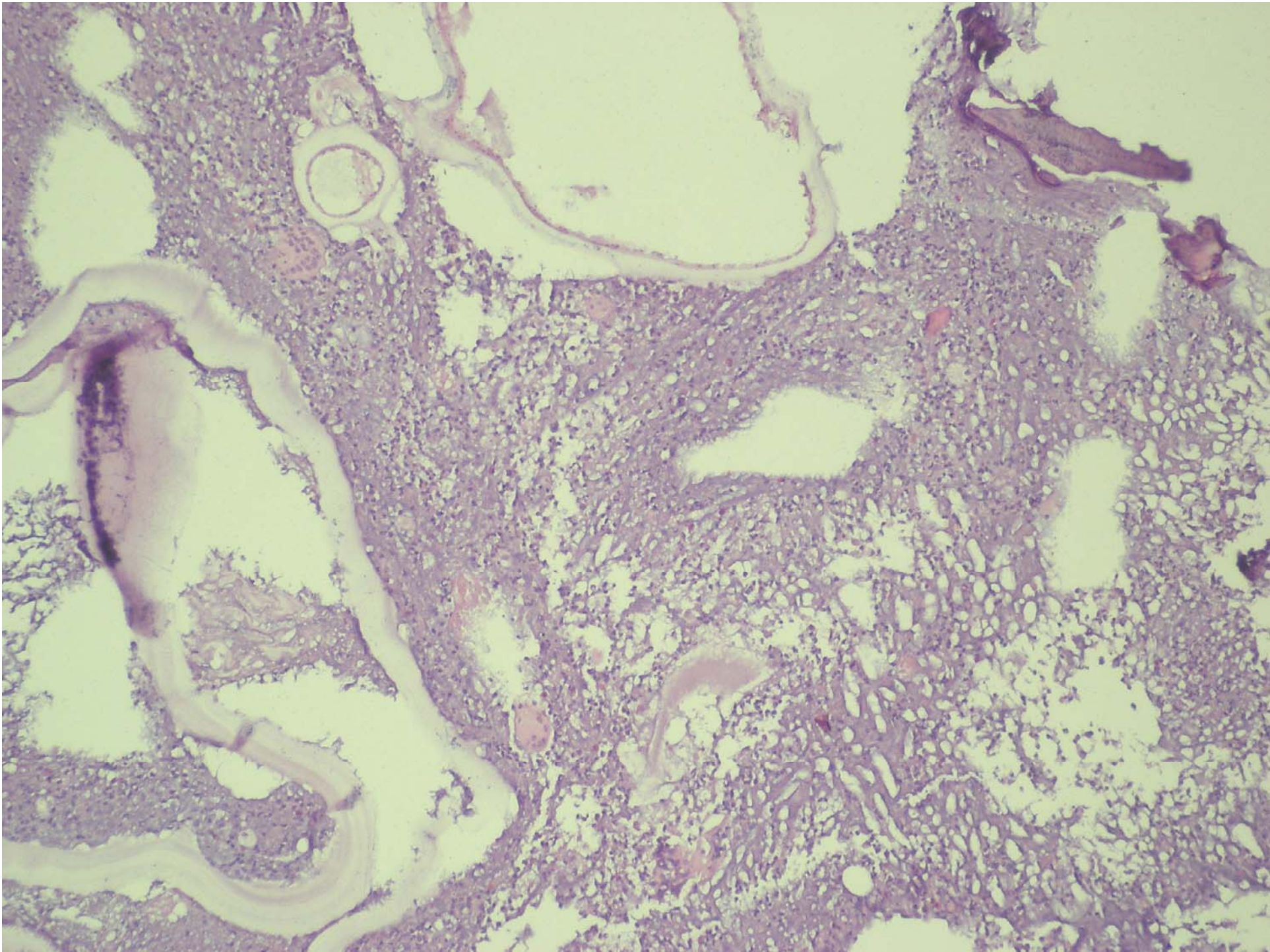
- Ekinokok osteomyeliti
- Kist oluşumu
- Eozinofiller çoktur
- Makrofajlar içinde parazit saptanabilir
- İskelet sistemi tutulumu % 0.5-4.7

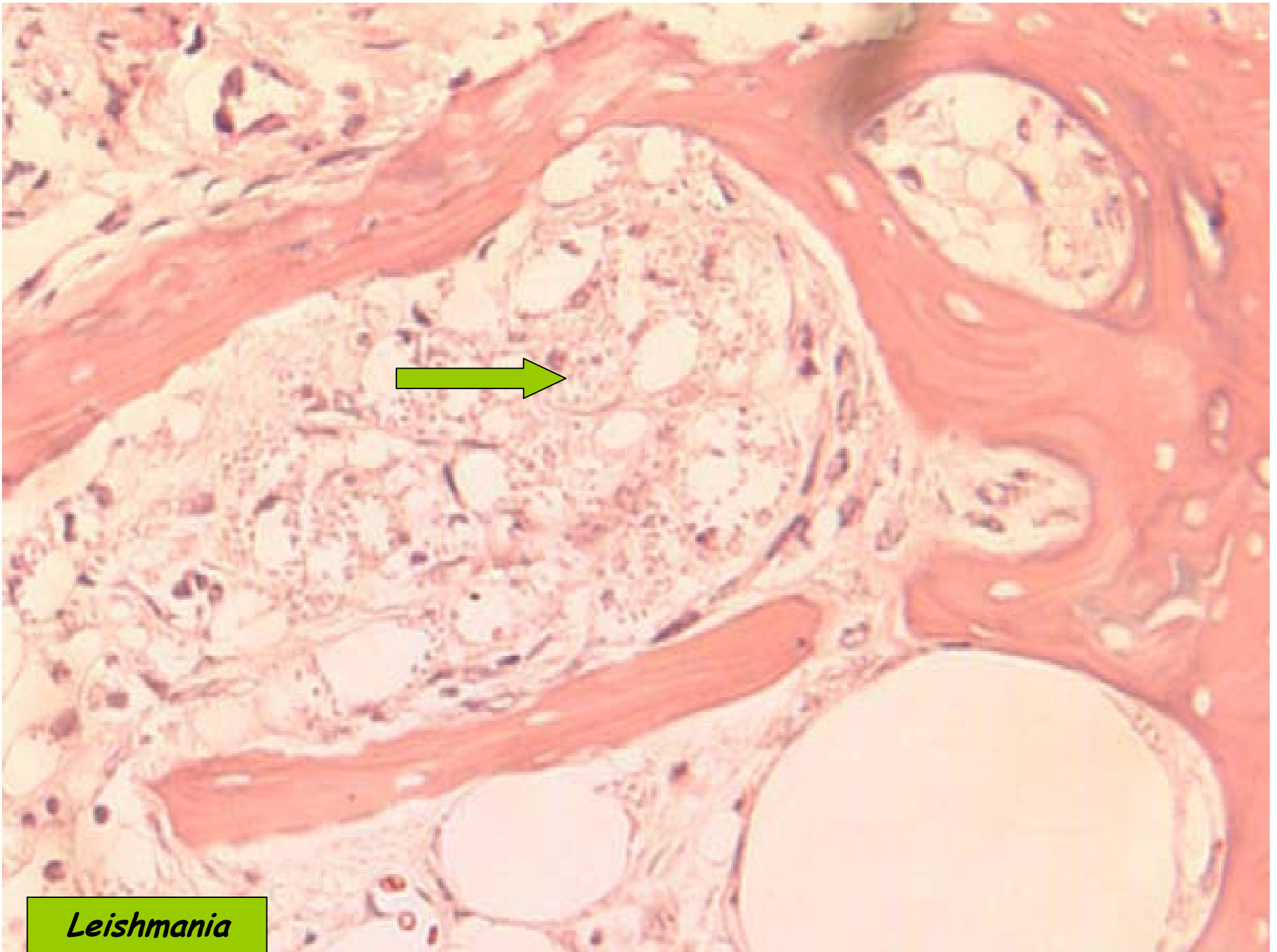


Ekinokok

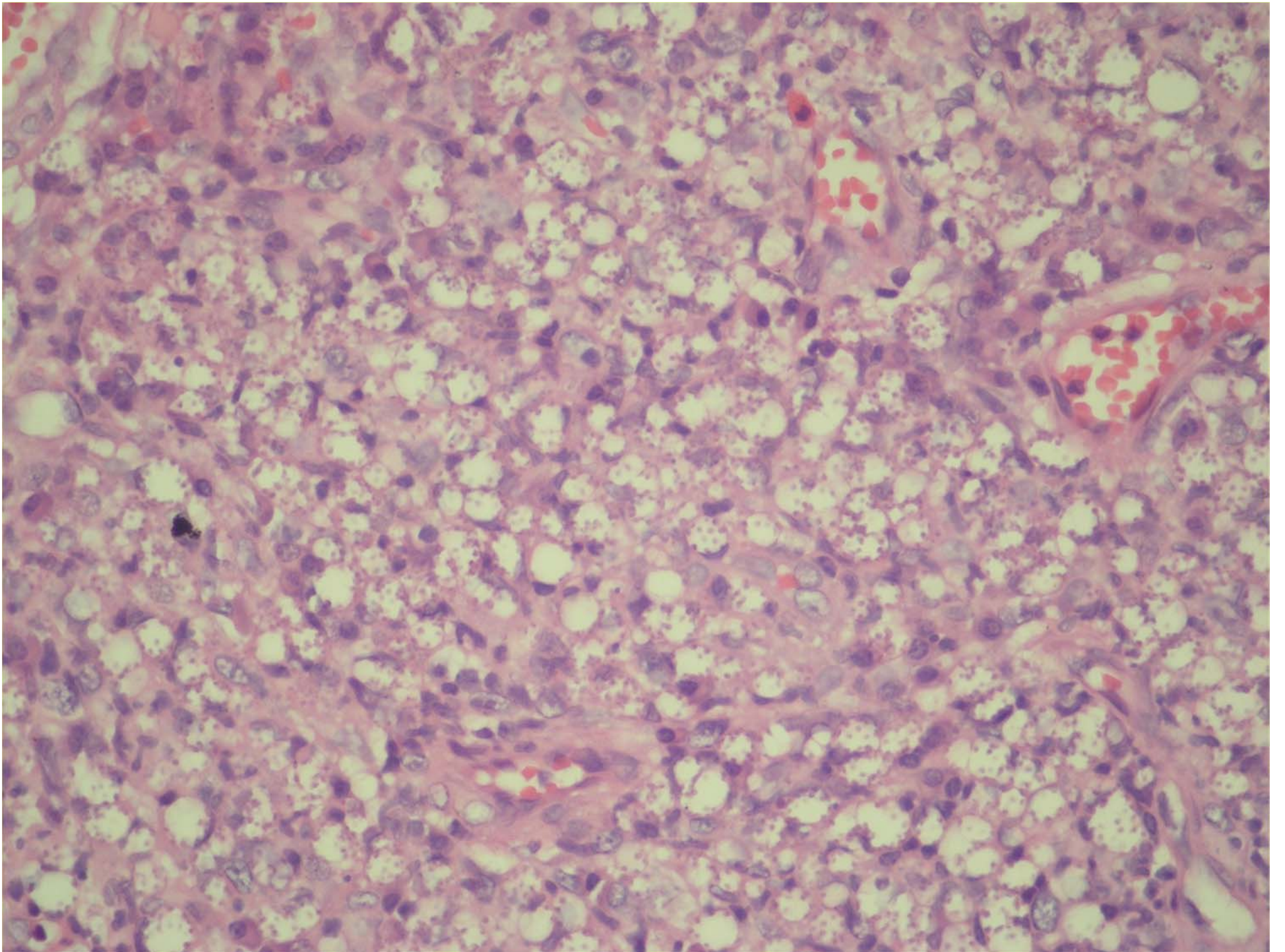








Leishmania



GRANULOMATÖZ İNFLAMASYON

Tüberküloz

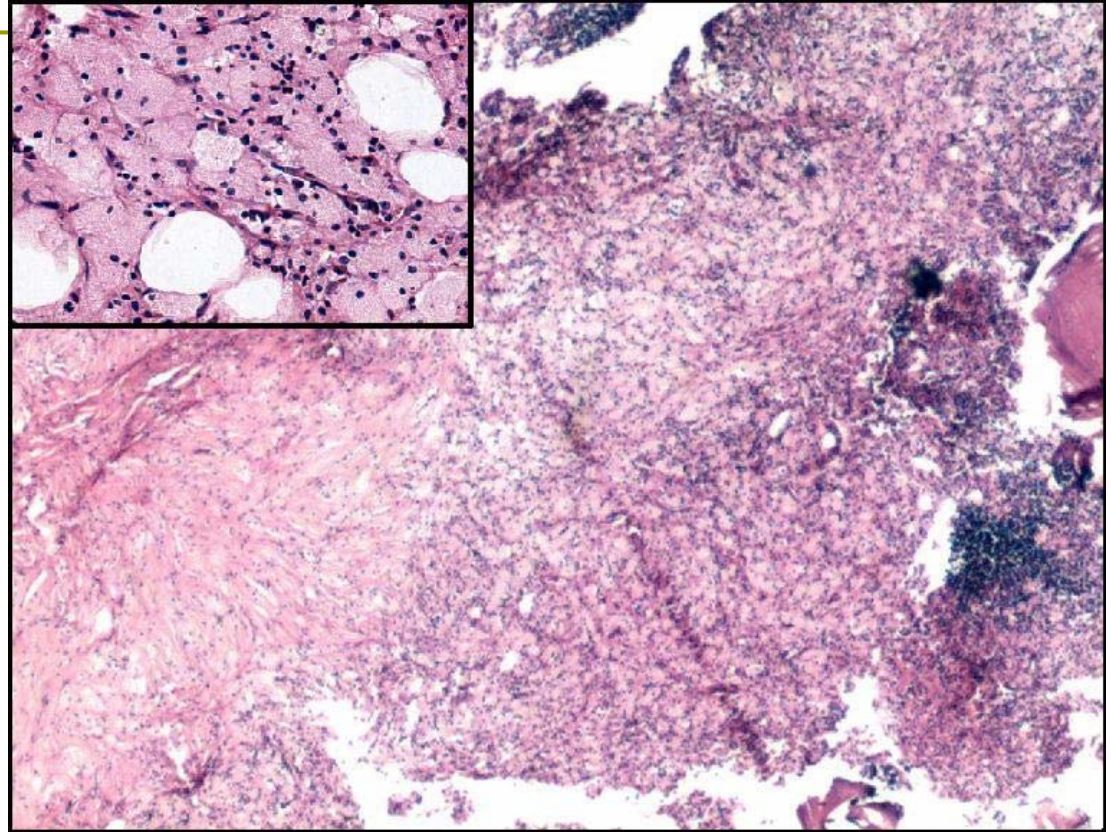
Mantar infeksiyonu

Sarkoidoz

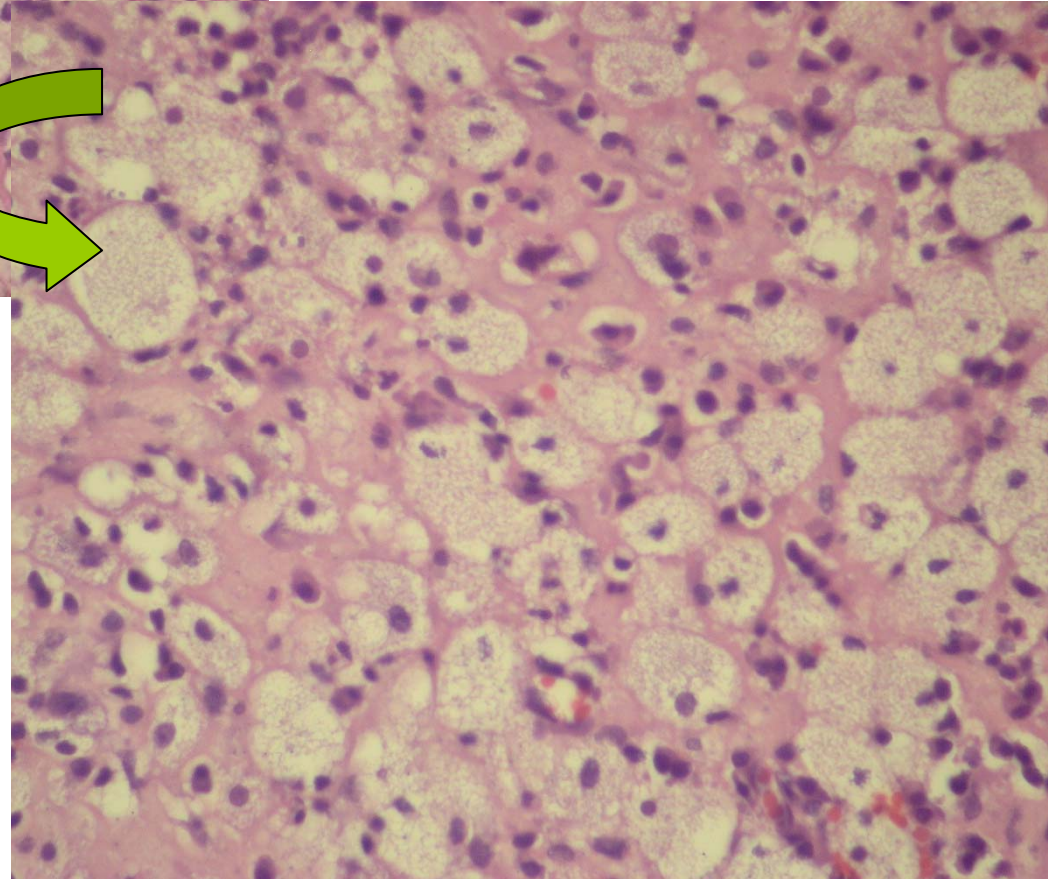
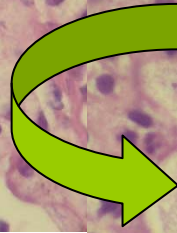
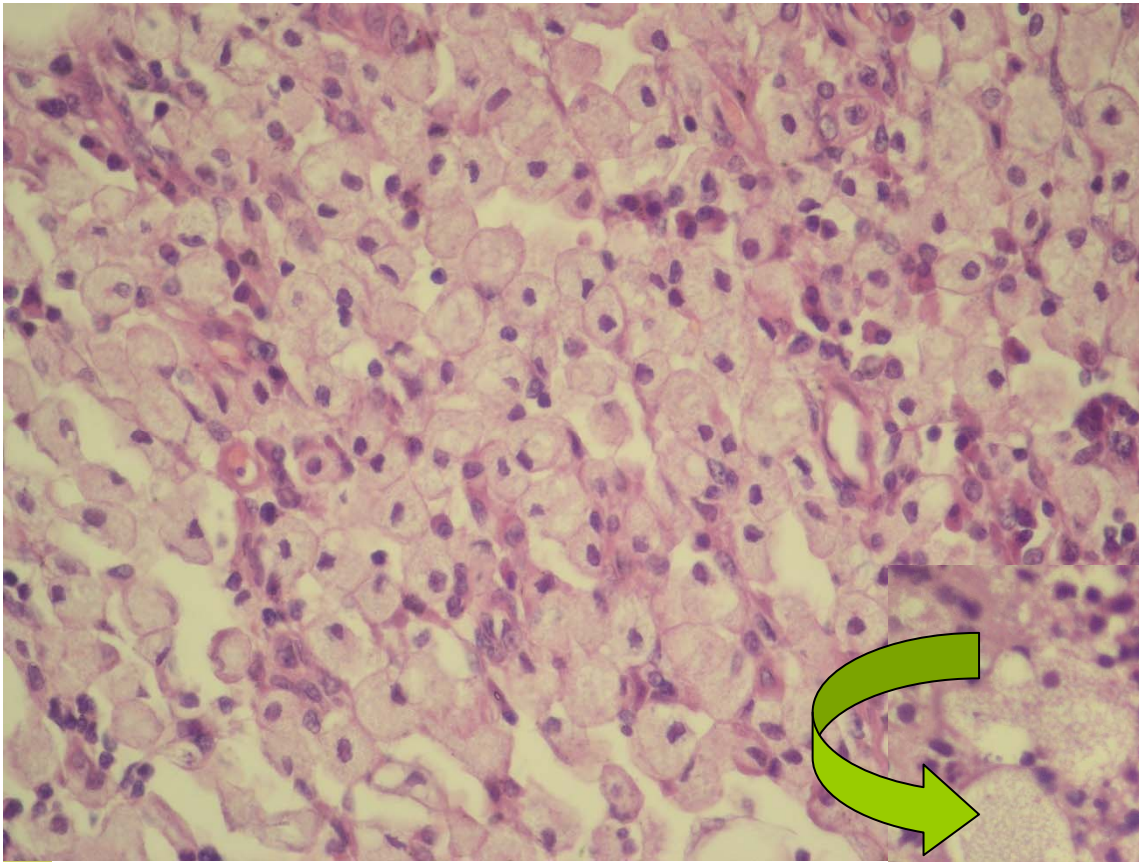
Yabancı cisim reaksiyonu

KSANTOGRANULOMATÖZ OSTEOMYELIT

- Gross olarak malignite ile karışabilir
- Granüler, eosinofilik, PAS pozitif **kitle** köpüksü histiositler, plazma hücreleri, arada nötrofiller, hemoraji, fibrin
- Multinuklee dev hücreler
- Ayırıcı tanıda
 - Kronik rekürrent multifokal OM
 - Ksantom
 - İnfiltratif depo hastalığı
 - Malakoplaki
 - Langerhans hücreli histiositoz
 - Metastatik renal hücreli karsinom



Ksantogranulomatöz OM

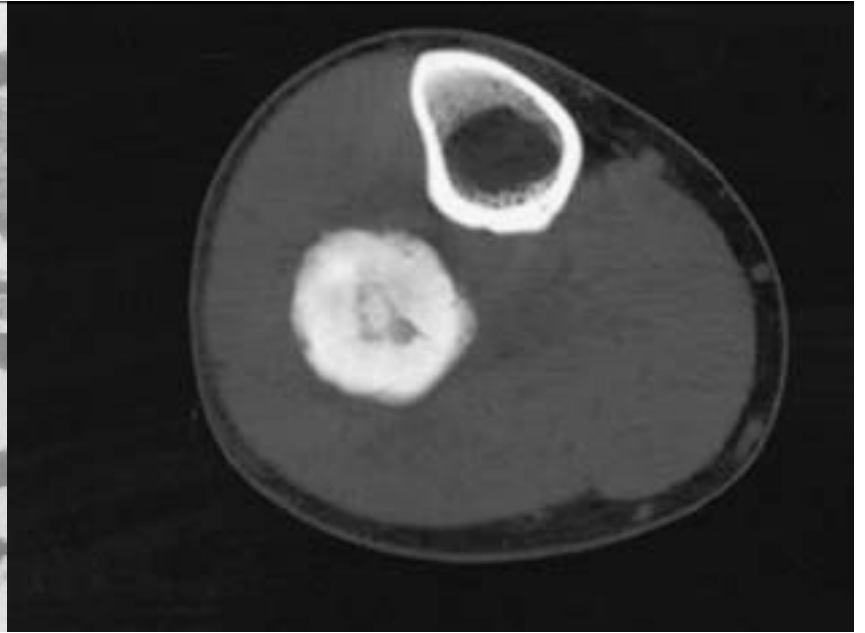
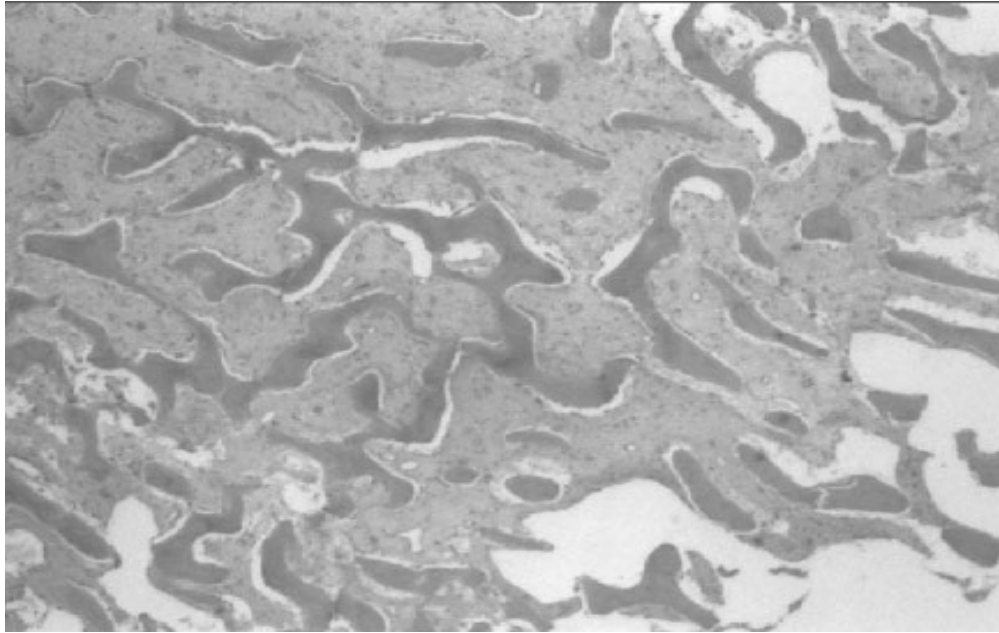


KRONİK TEKRARLAYAN MULTİFOKAL OSTEOMYELIT

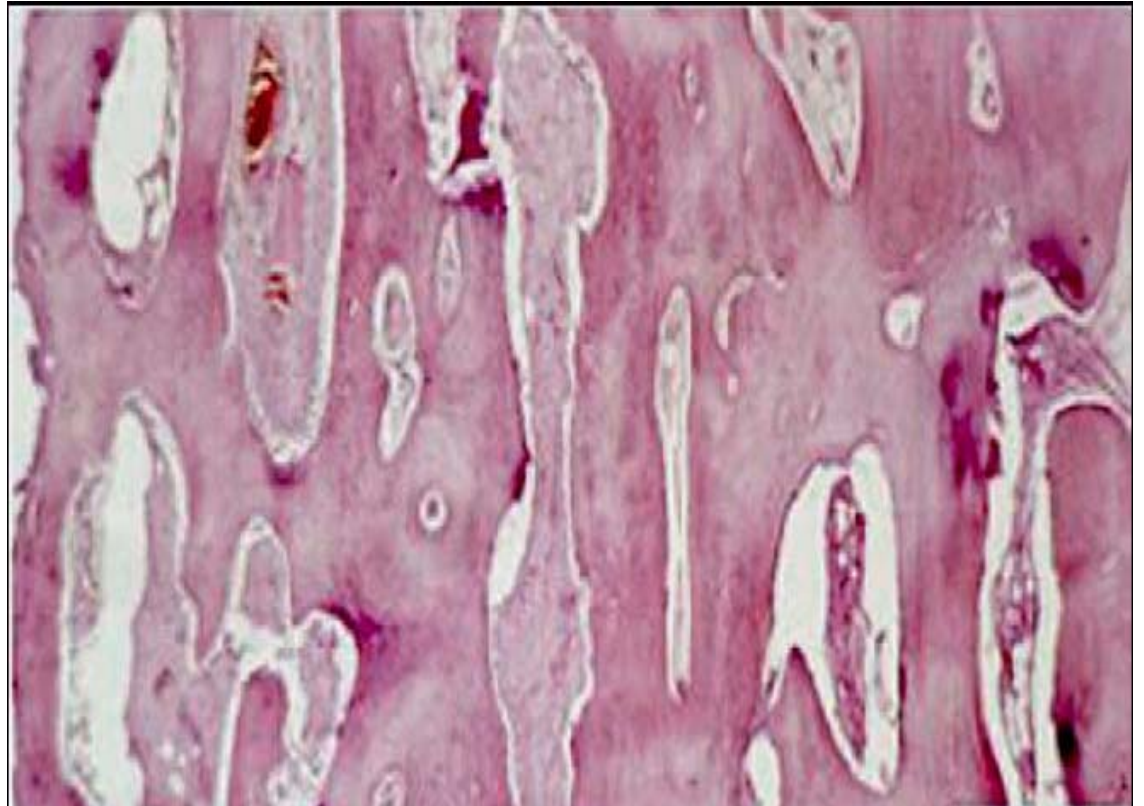
- 1972 yılında tanımlanmış
- Spontan iyileşme ve tekrarlama
- Çocukluk
- Otoimmün
- Plazma hücreleri baskın
- Negatif bakteriyal kültür tipik

KRONİK SKLEROZAN OSTEOMYELIT

- 1893 yılında Garre
- Çoğunlukla çene kemiklerinde, ayrıca tibiada
- Genelde 25 yaşın altında
- Kültür negatif
- Kemikte kalınlaşma, kemik iliğinde fibrozis, az sayıda inflamatuvar hücre
- Süpürasyon, sekestrum yok
- Ayırıcı tanıda
 - Osteoid osteom
 - Ewing sarkomu
 - Osteoblastom
 - Fibröz displazi

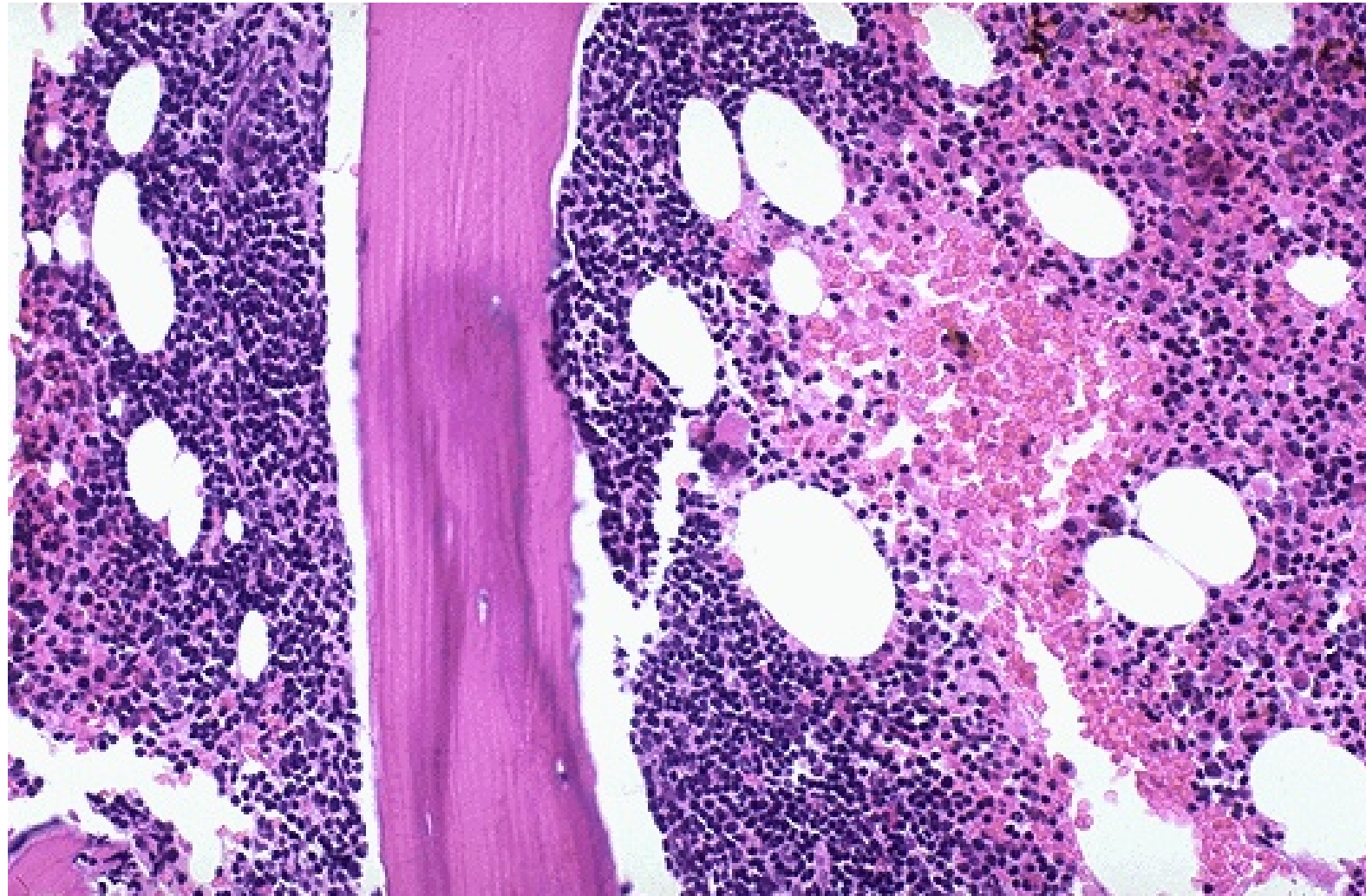


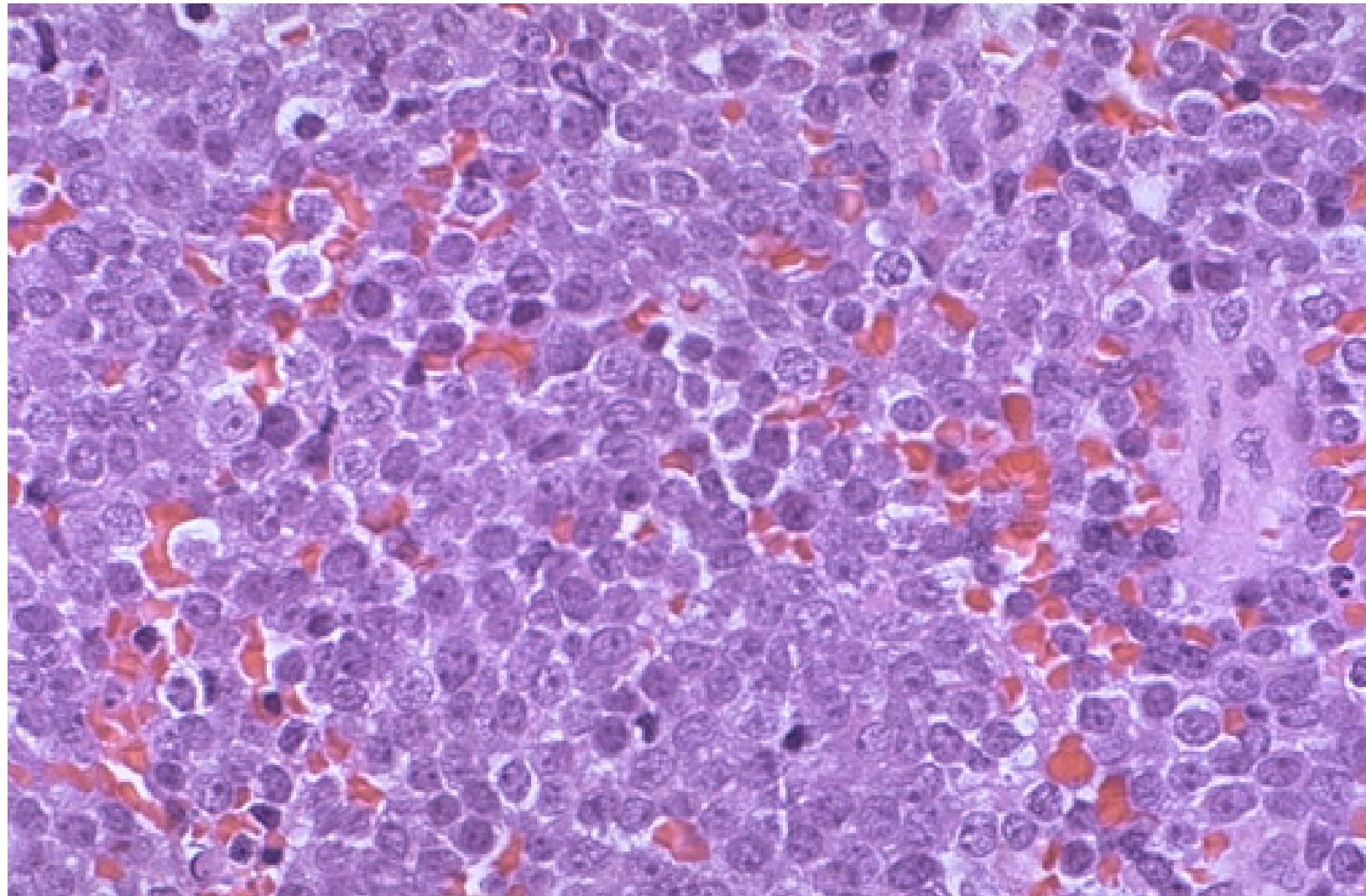
Kronik sklerozan OM

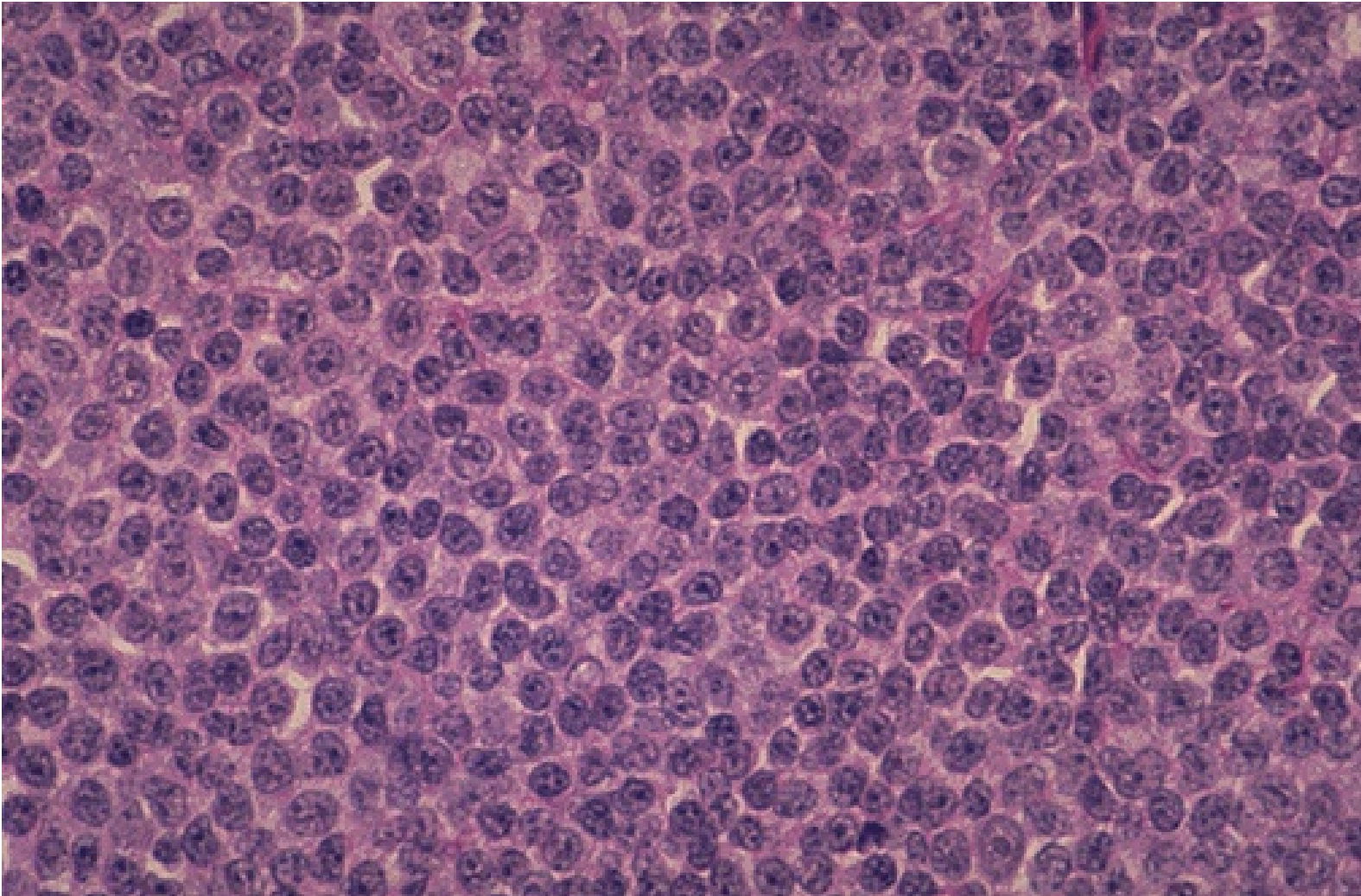


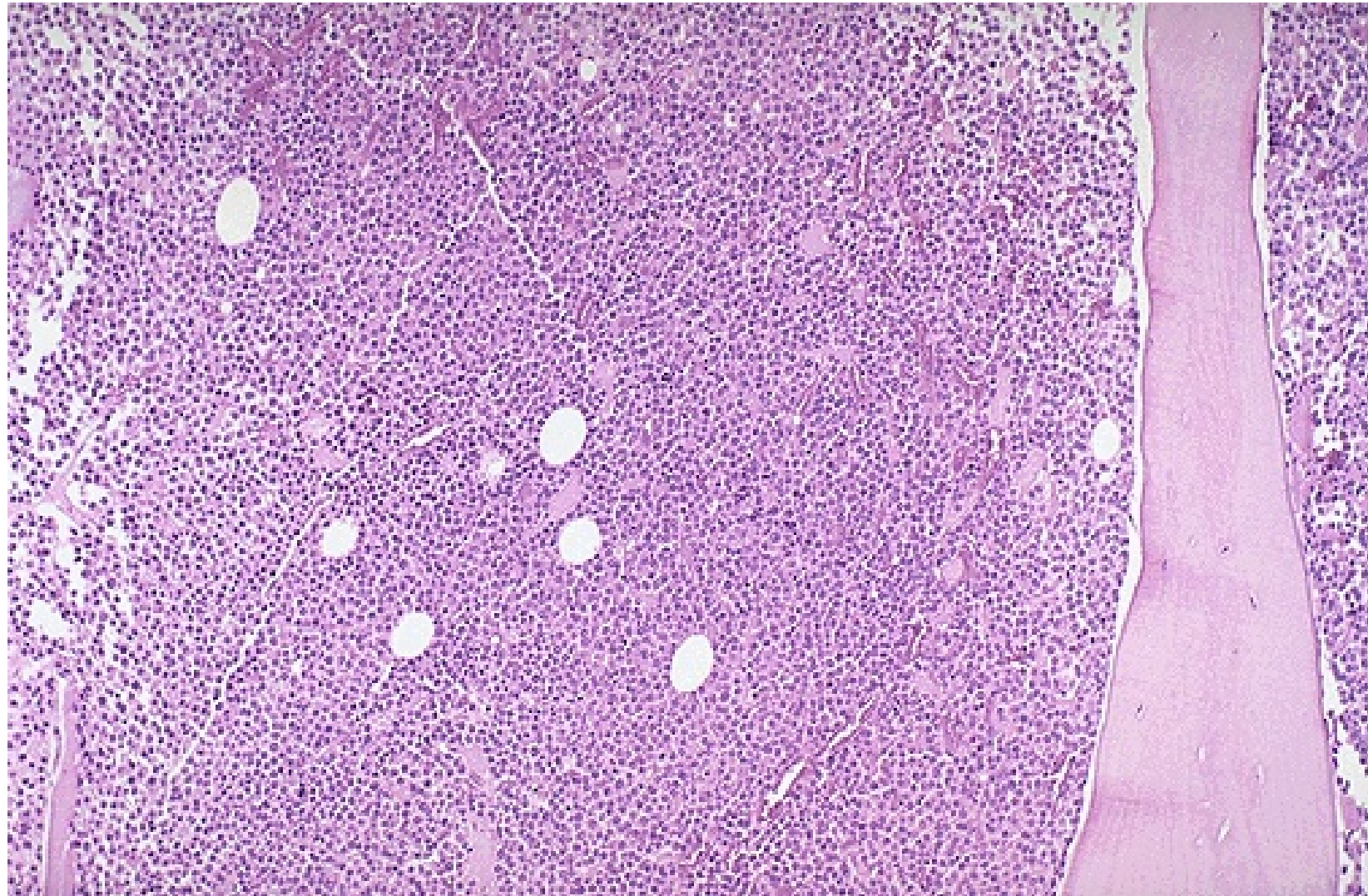
AYIRICI TANI

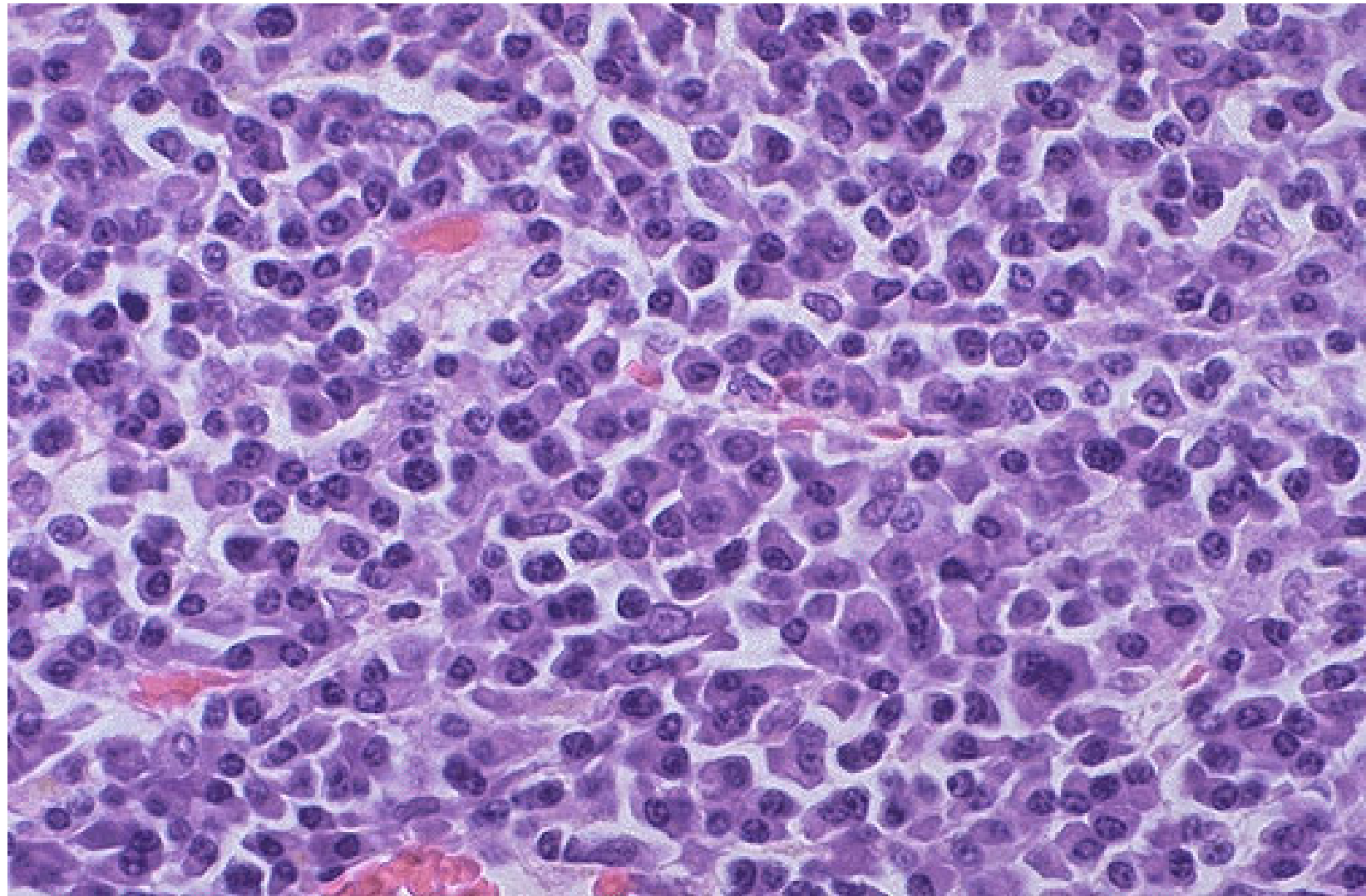
- Lenfoma
- Myelom
- Langerhans hücreli histiositoz

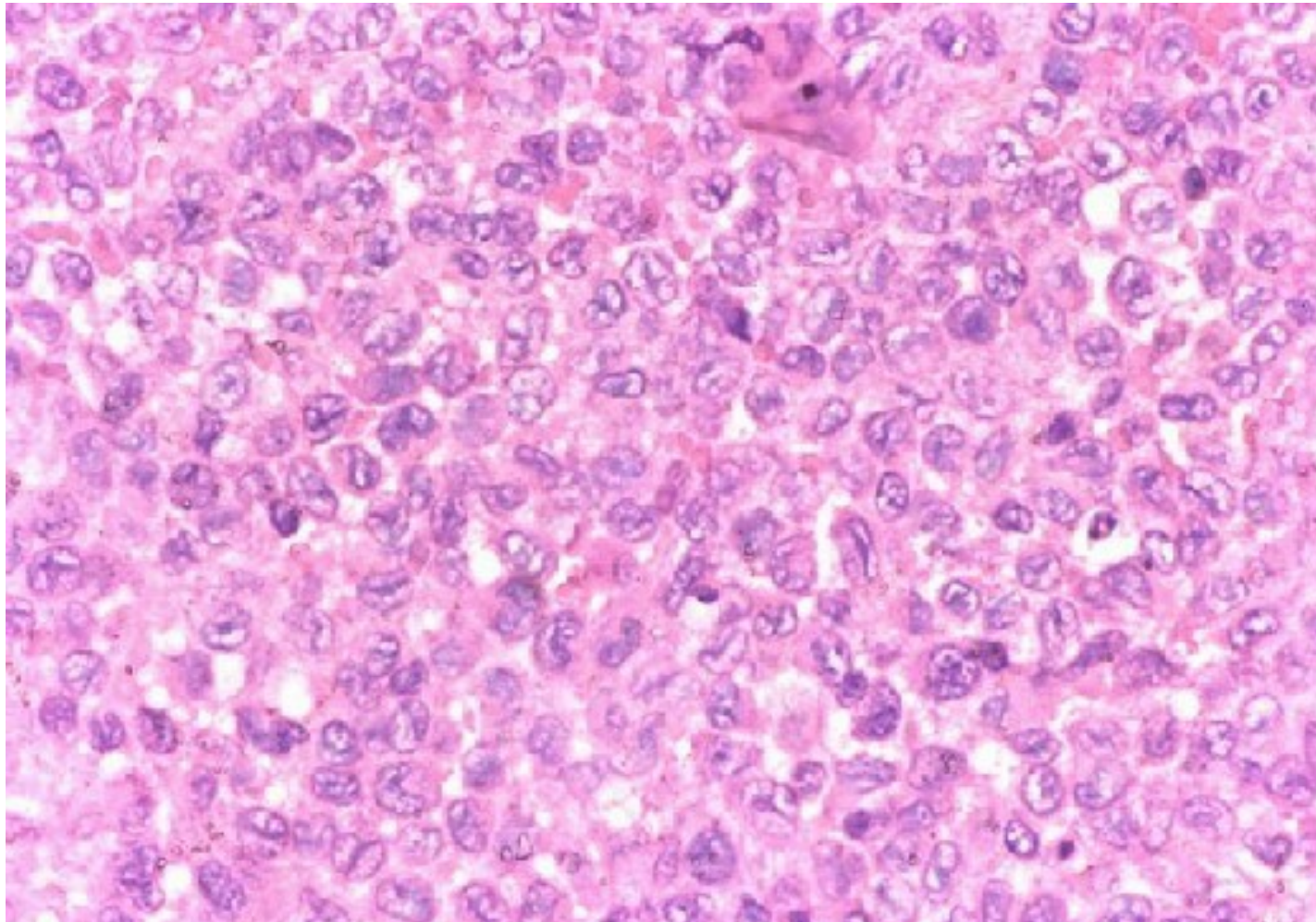






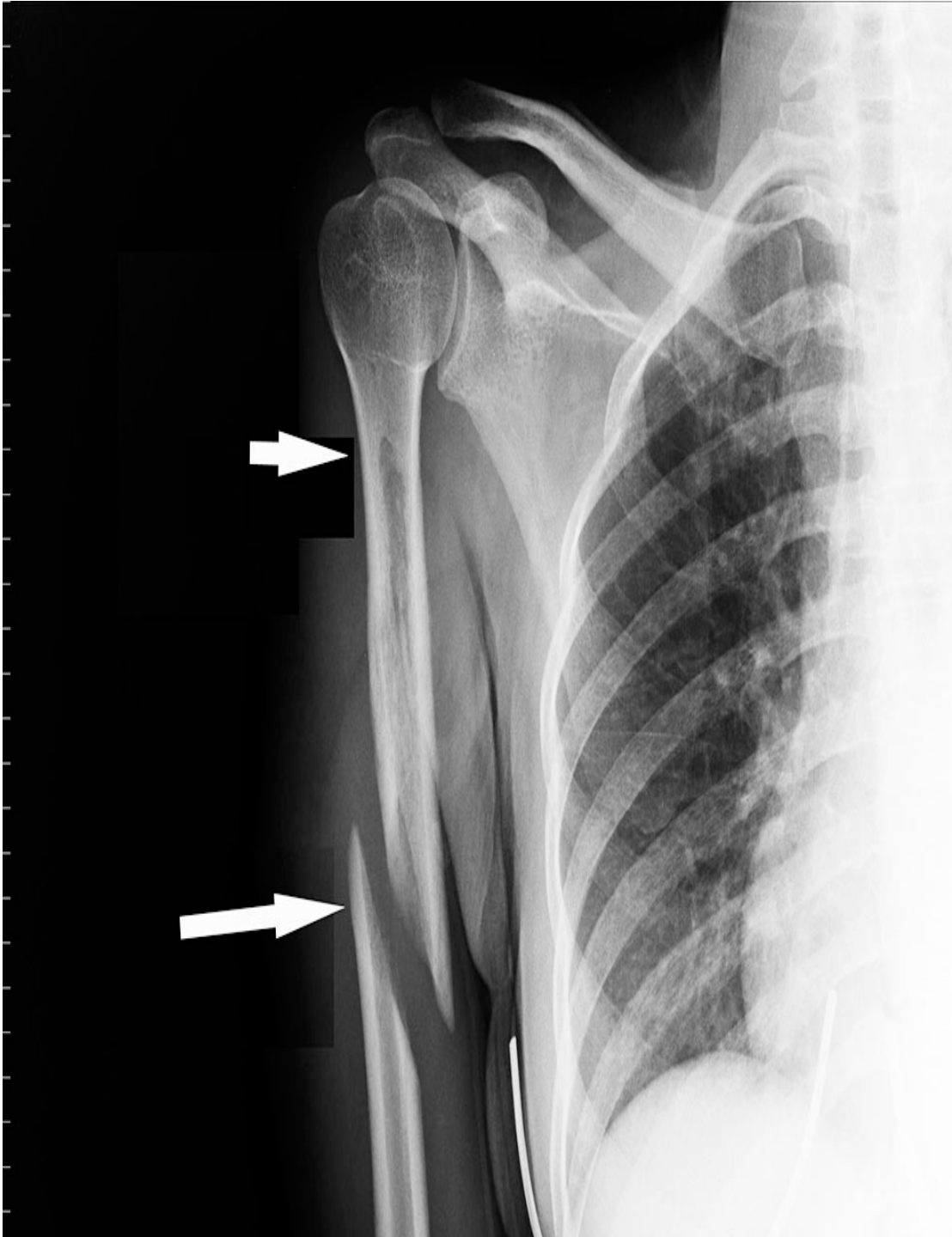






KOMPLİKASYONLARI

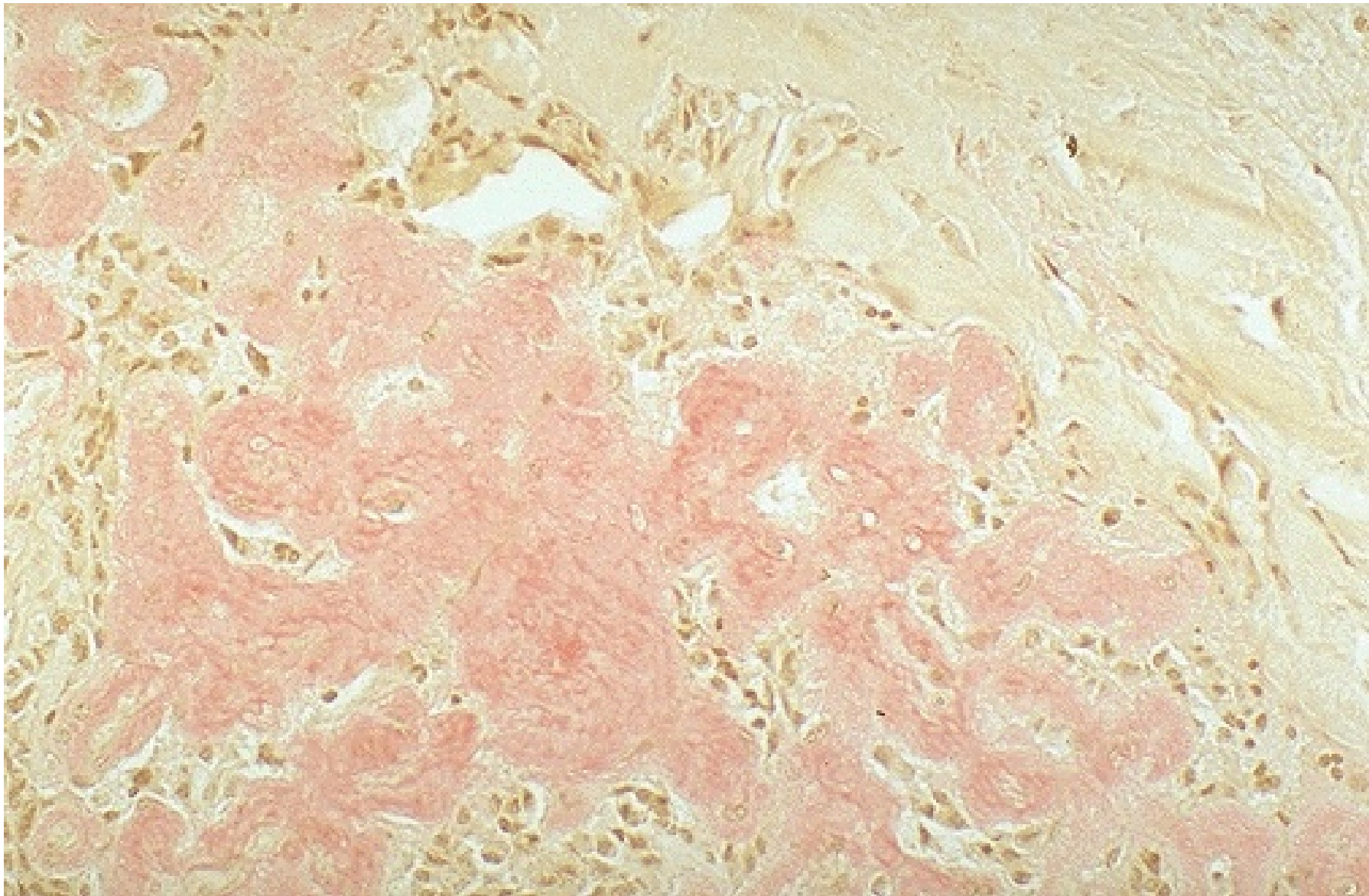
- ❑ Kronik osteomyelit
- ❑ Lokal yayılım
- ❑ Septik artrit
- ❑ Sepsis
- ❑ Patolojik kırık
- ❑ Fonksiyon kaybı
- ❑ Amputasyon
- ❑ Kemik büyüme bozukluğu
- ❑ Sistemik amiloidoz
- ❑ Malignite gelişimi



Patolojik kırık



Gangrenöz nekroz ve ülserasyon



Amlidoz



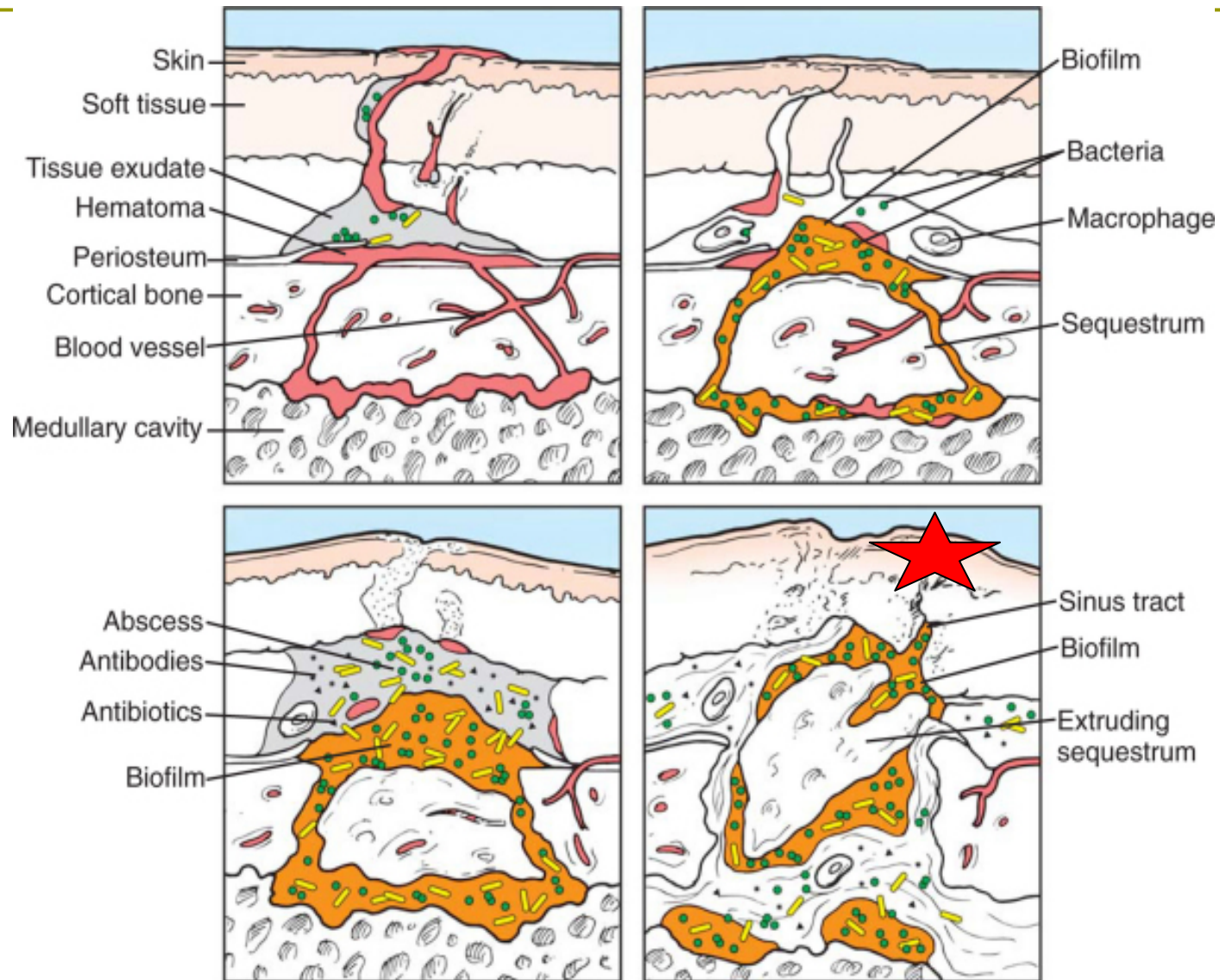


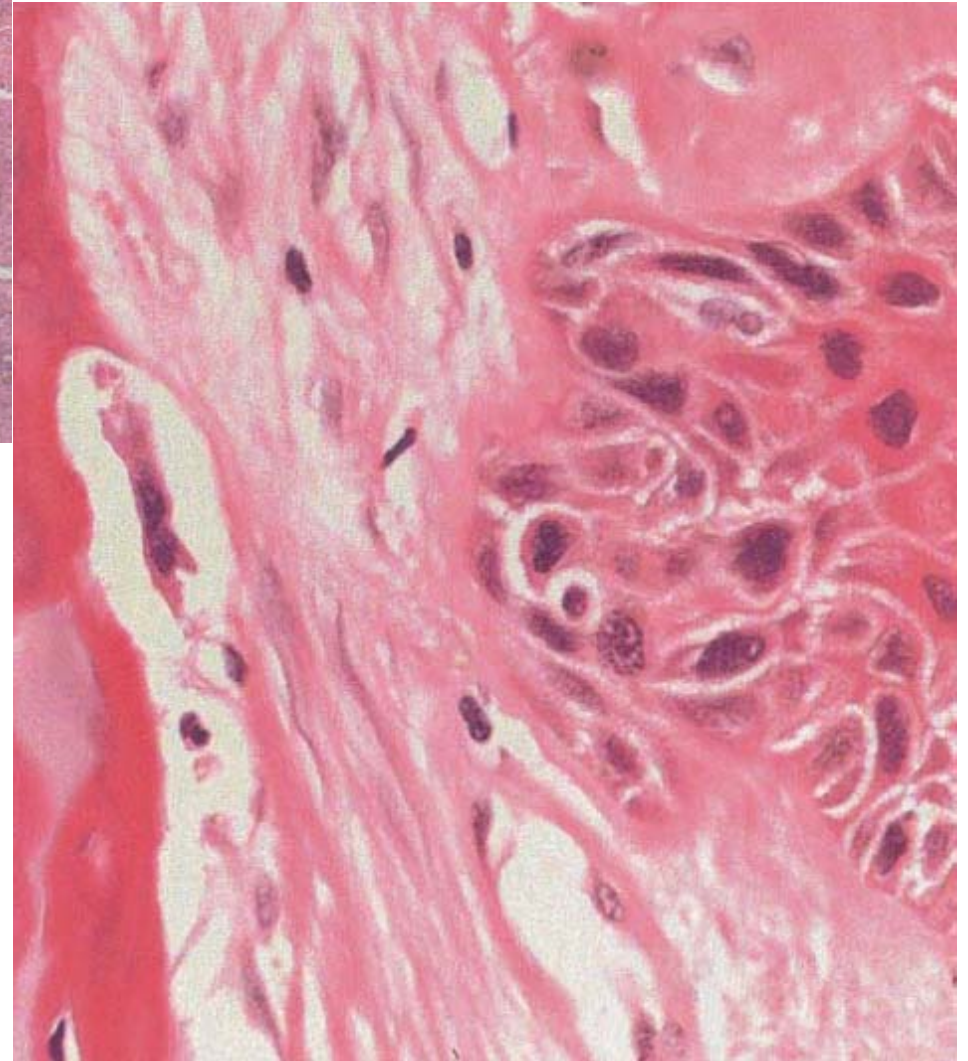
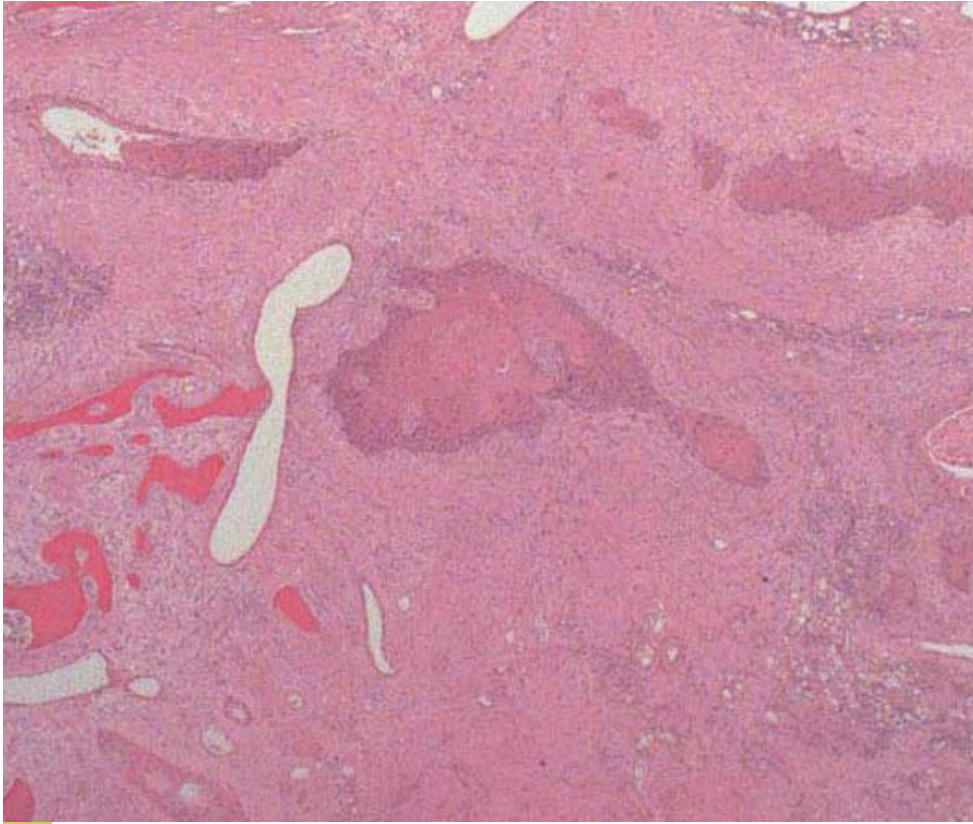
Malignite gelişimi

- **Skvamöz hücreli karsinom**
- Fibrosarkom
- Lenfoma
- Anjiosarkom
- Rabdomyosarkom
- Myelom
- Malign hemanjioendotelom

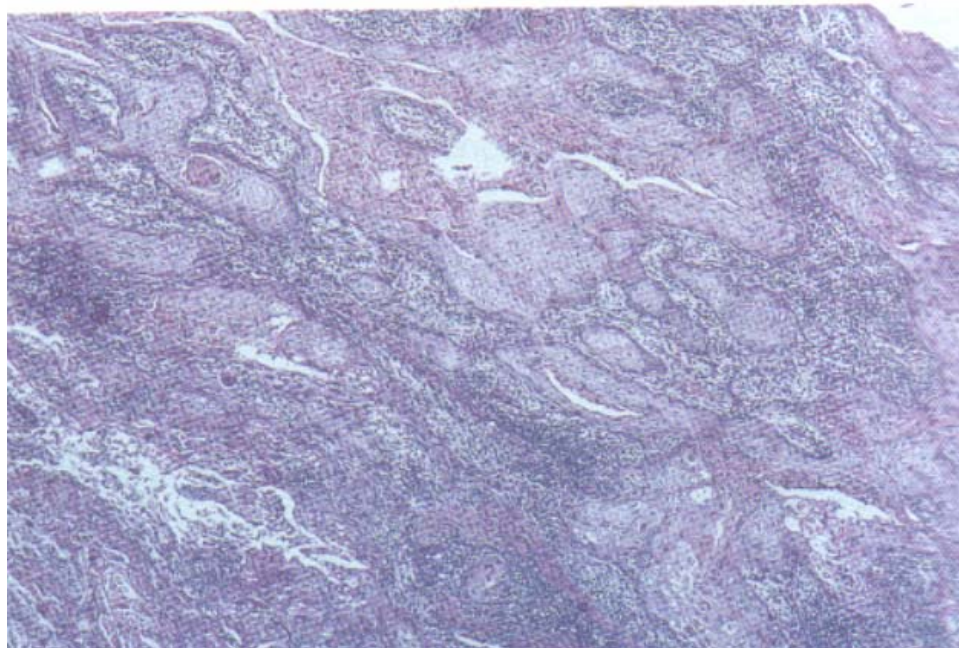
Skvamöz hücreli karsinom

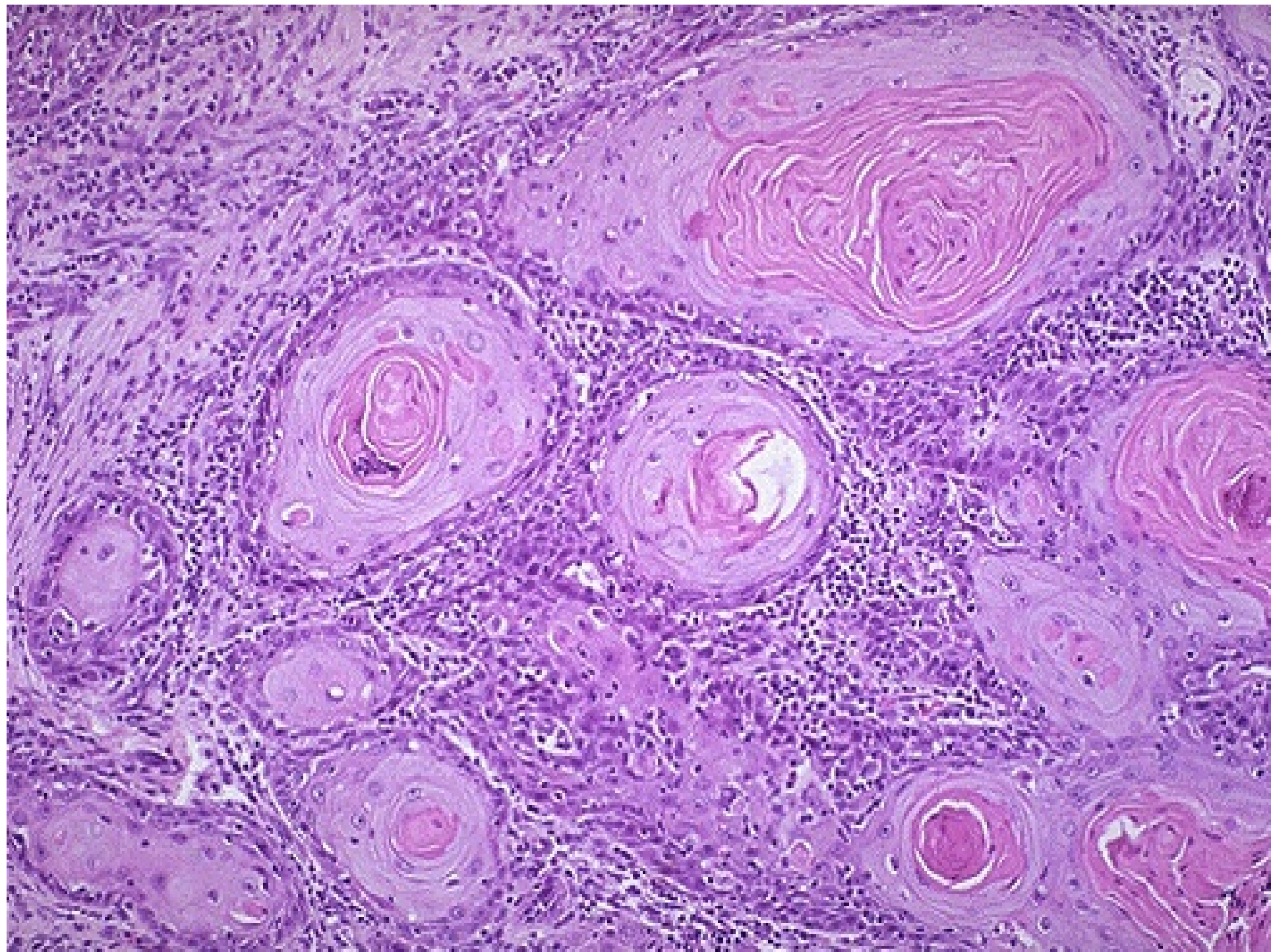
- Kronik osteomyelitte % 2
- 18-72 (ortalama 42 yıl)
- Lenf nodu tutulumu % 30

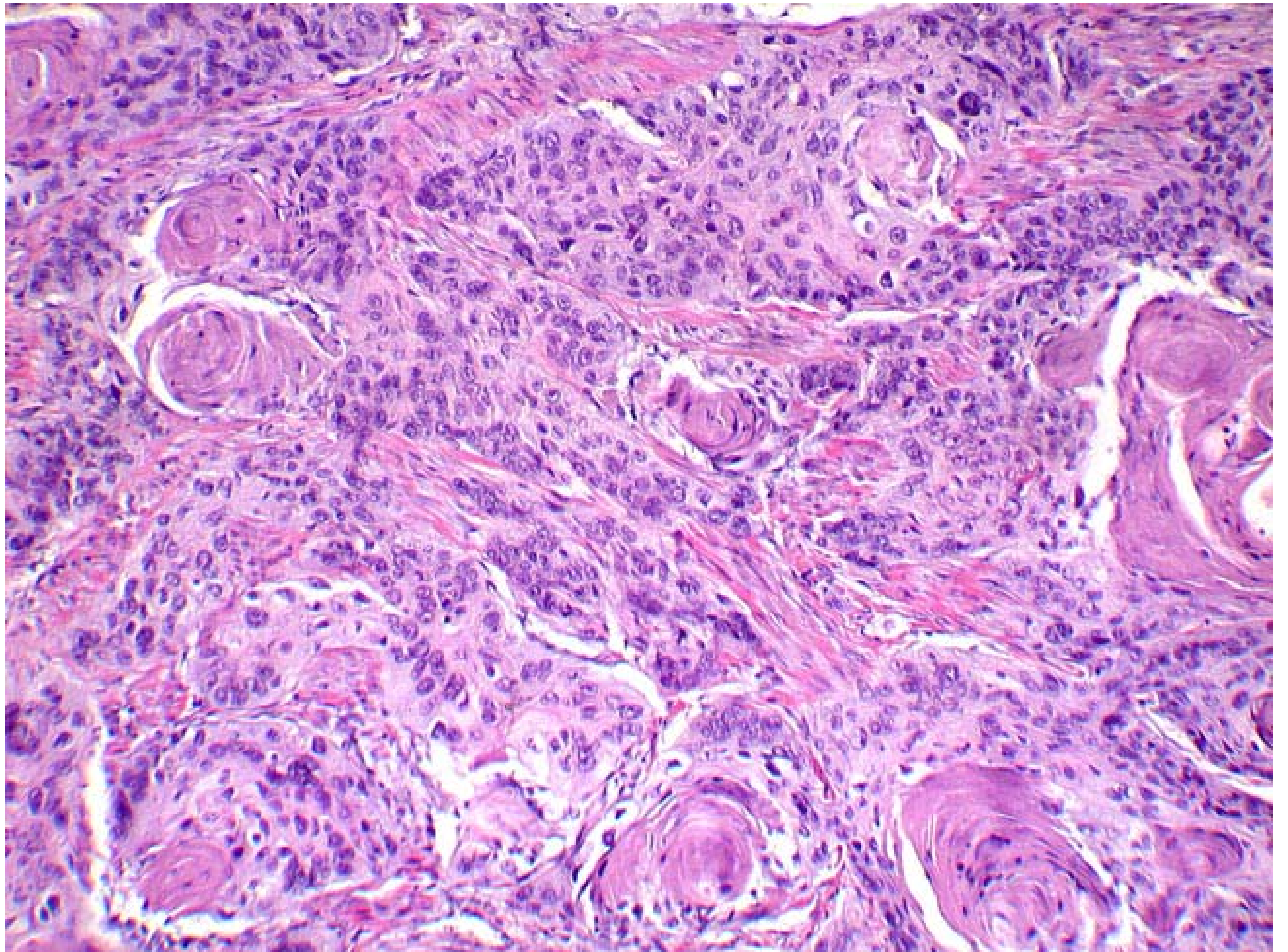


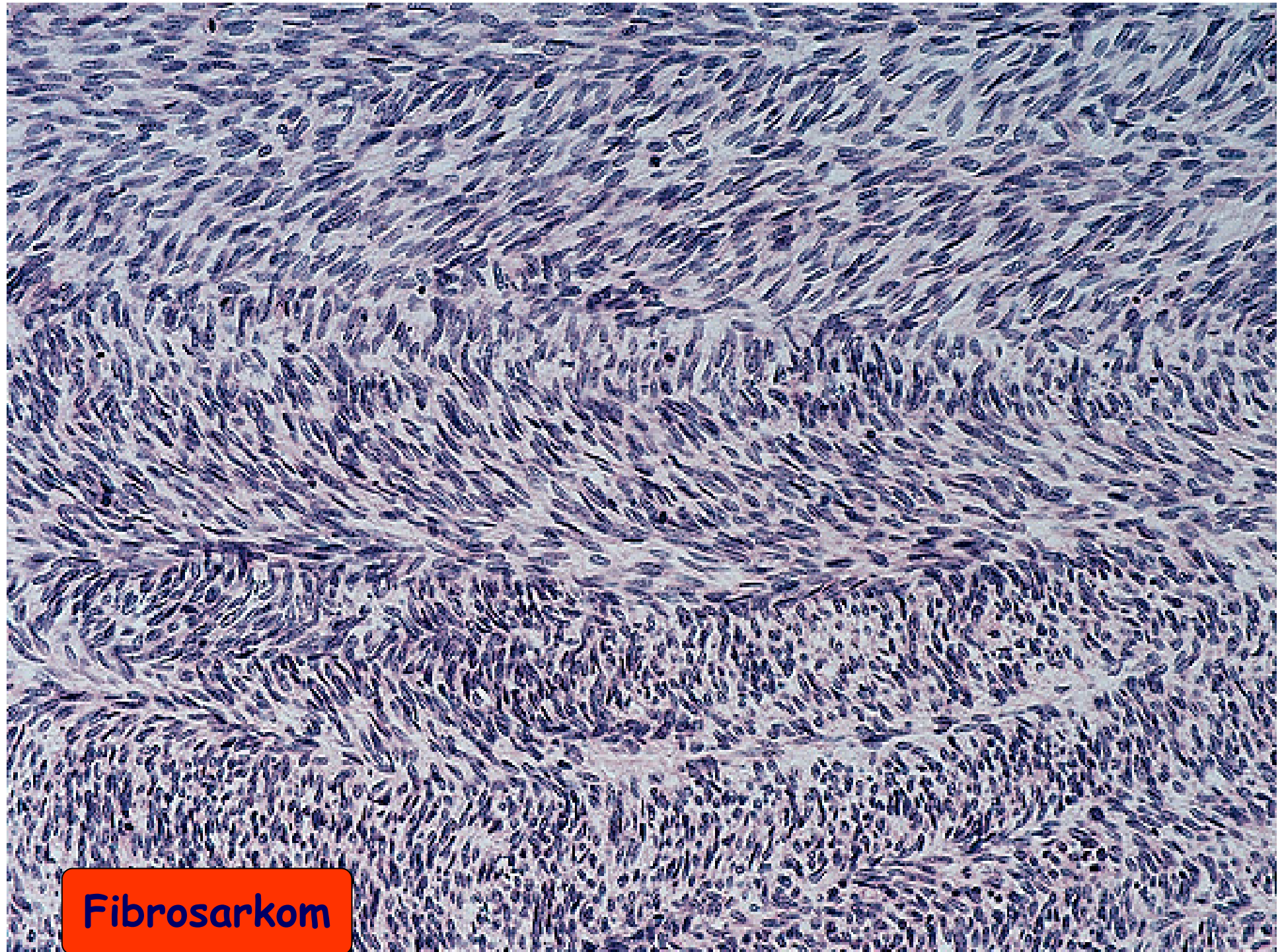


Skvamöz hücreli karsinom









Fibrosarkom

