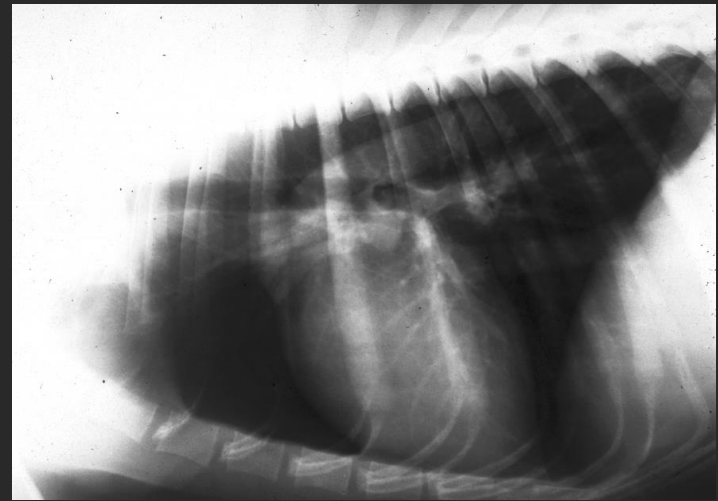


# **PARETE TORACICA**

**Massimo Vignoli**  
maxvignoli@alice.it

# Differenze tra anatomia radiologica e convenzionale:

- Proiezione su un piano (sommazione) di organi tridimensionali
- **Contenuto degli organi**
- Forza di gravità
- **Movimento degli organi**
- Ingrandimento
- **Alcune strutture non visibili radiologicamente**

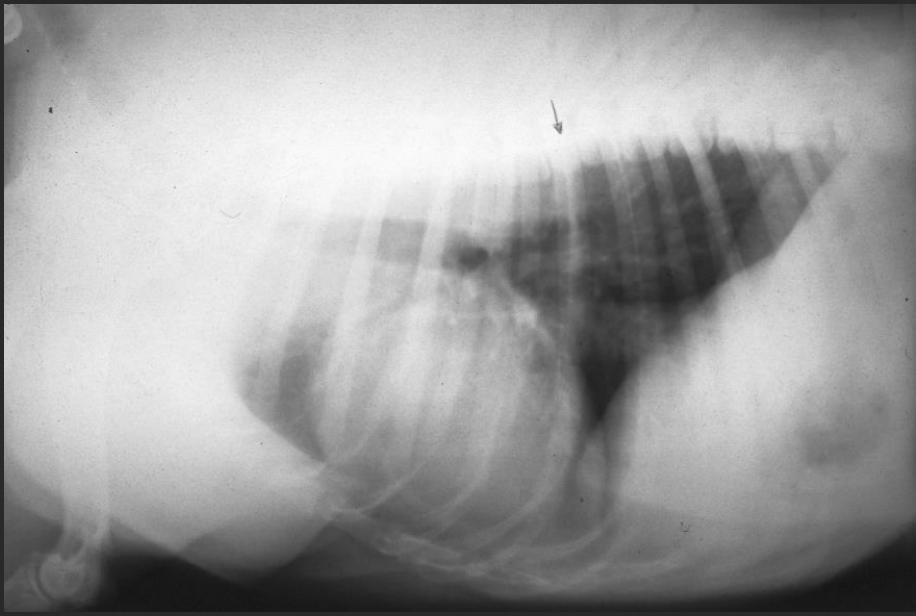
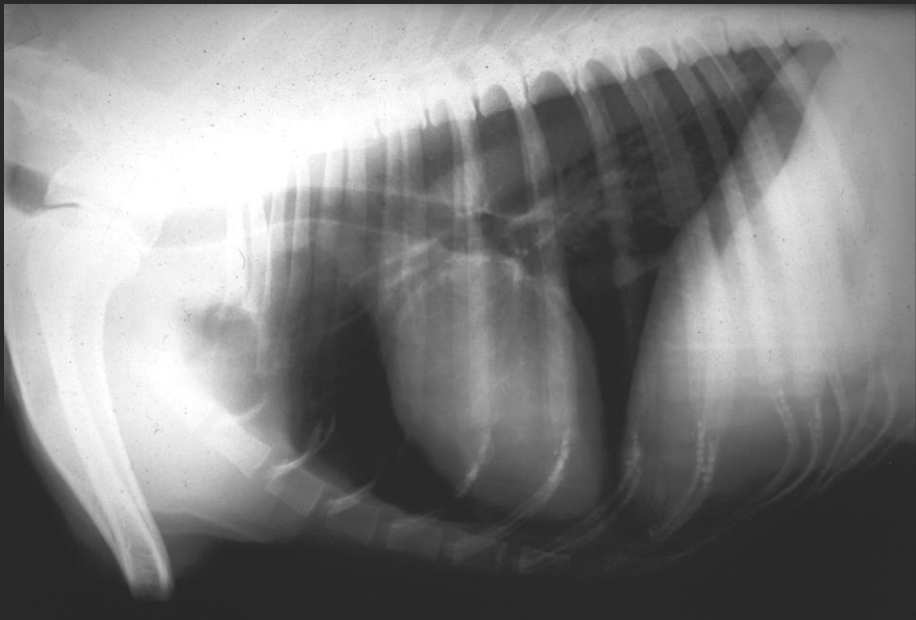


# Anatomia radiografica normale

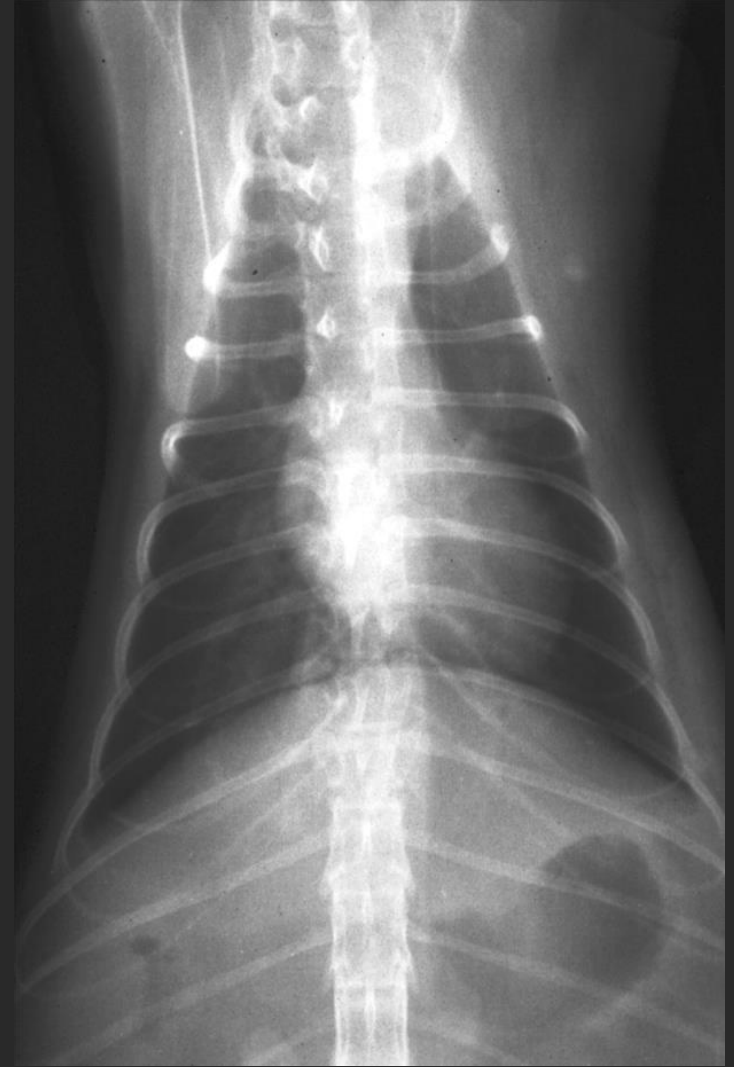
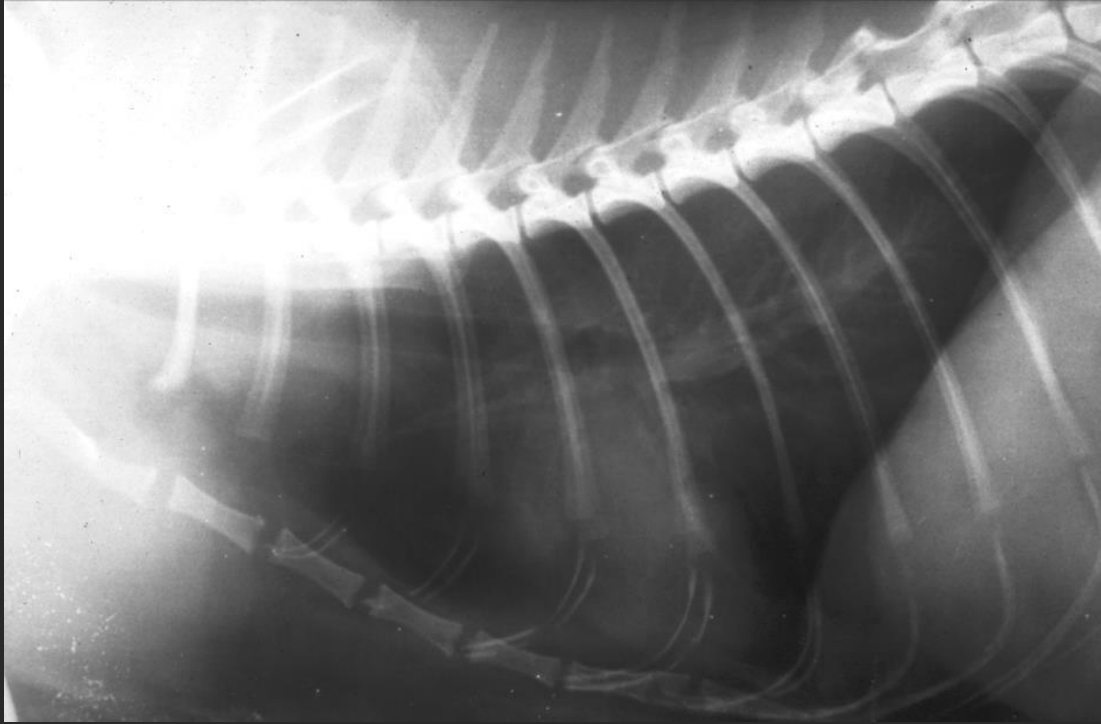
- 3 tipi di conformazione del torace:
  - torace profondo e stretto (Collie, Setter Irlandese)
  - torace a conformazione intermedia (Pastore Tedesco, Boxer, Barboncino, gatto)
  - torace largo e piatto (Boston T, Bulldog, Bull Mastiff)

*Le differenze anatomiche dovute  
alla conformazione sono molto  
maggiori rispetto a quelle tra un  
animale sano ed uno malato*

(Suter, 1984)







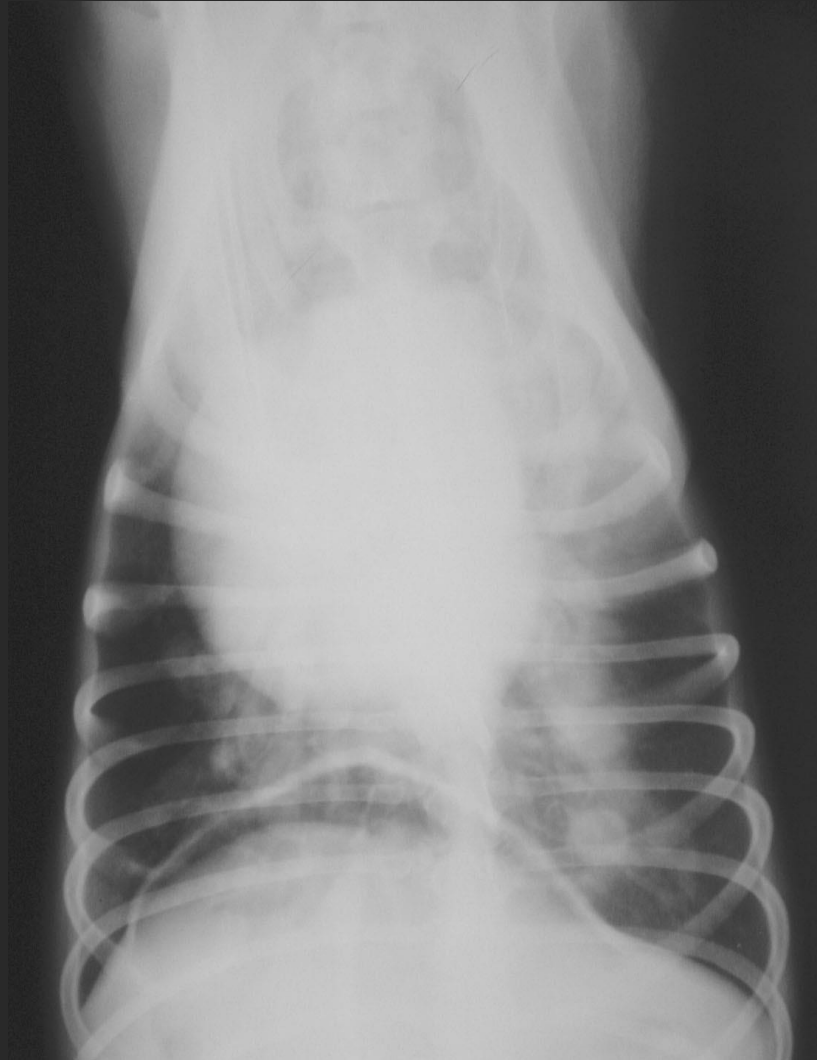
# VD-DV:

## > Basset Hound - < Bassotto





# Setter Inglese, f, 7a - “Barrel Chest”

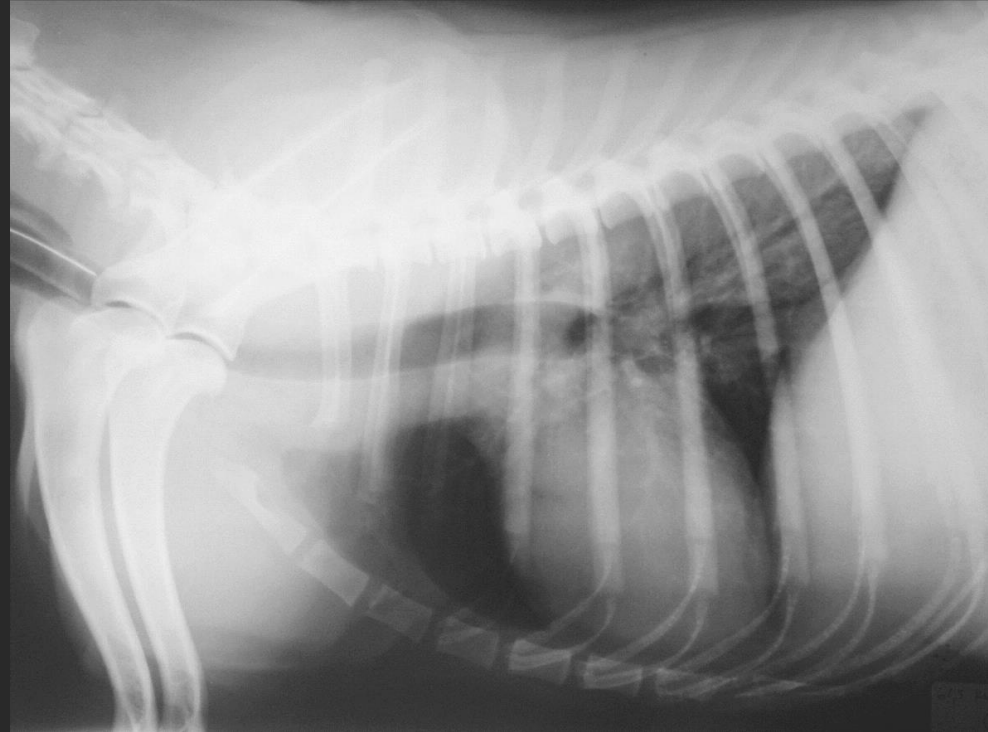


# Carlino, m, 9m - “Barrel Chest”



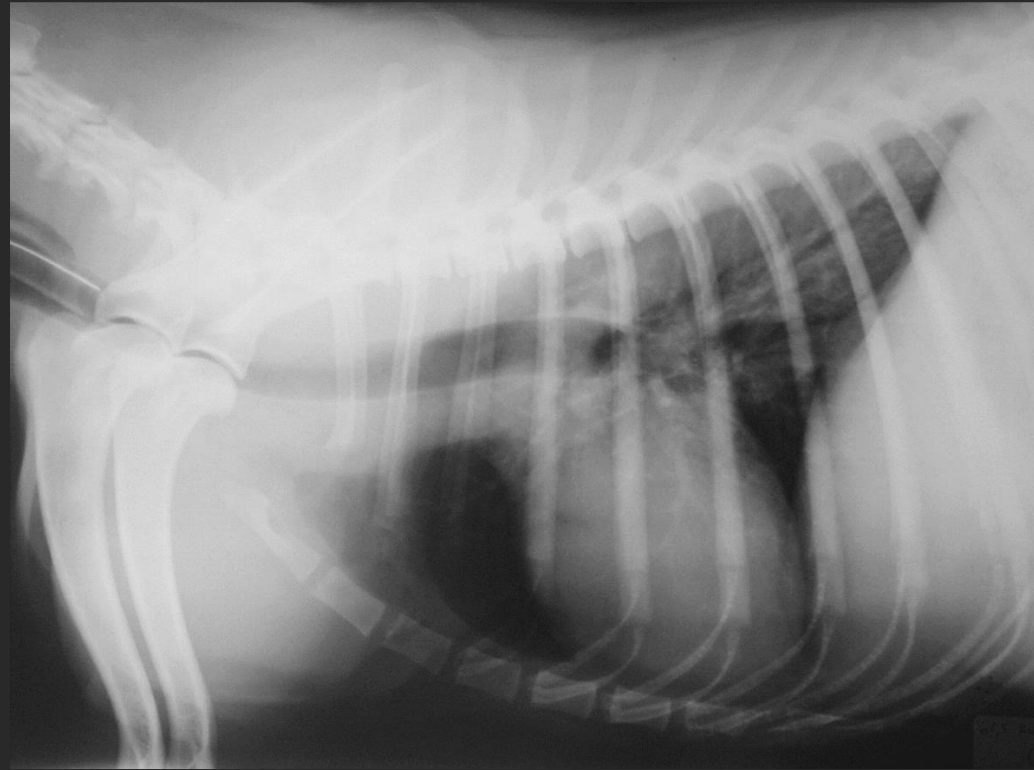
# PARETE TORACICA

- **Valutare:** cute, tessuto adiposo, muscoli sottocutanei, coste, sterno, vertebre, muscoli intercostali, pleura parietale
- **Riconoscere i segni radiografici** patologici
- **Descrivere le variazioni** di dimensioni, forma, posizione, numero ed opacità
- **Applicare le conoscenze** di fisiopatologia delle varie malattie



# PARETE TORACICA

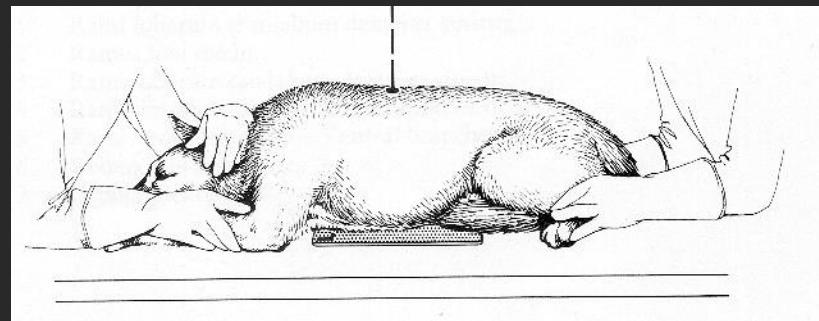
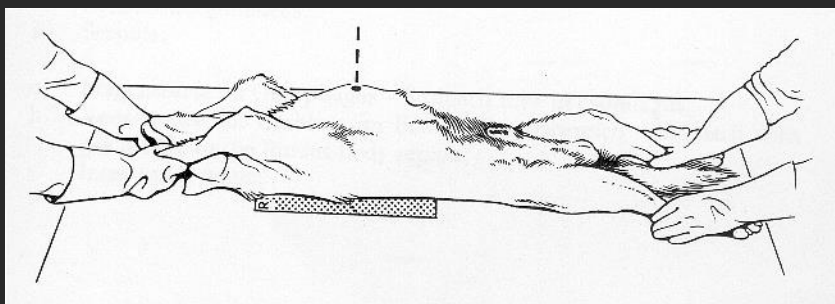
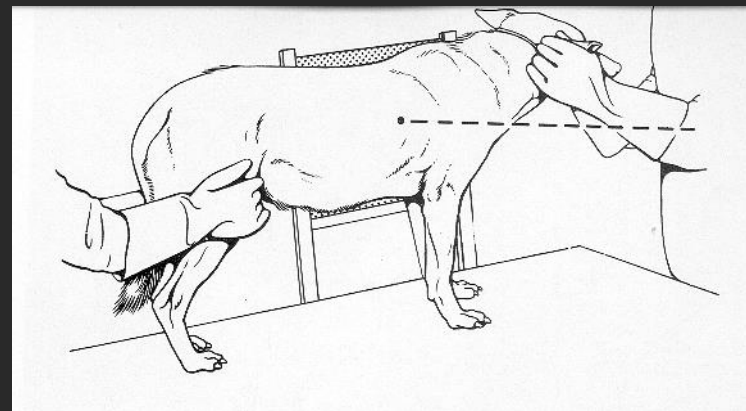
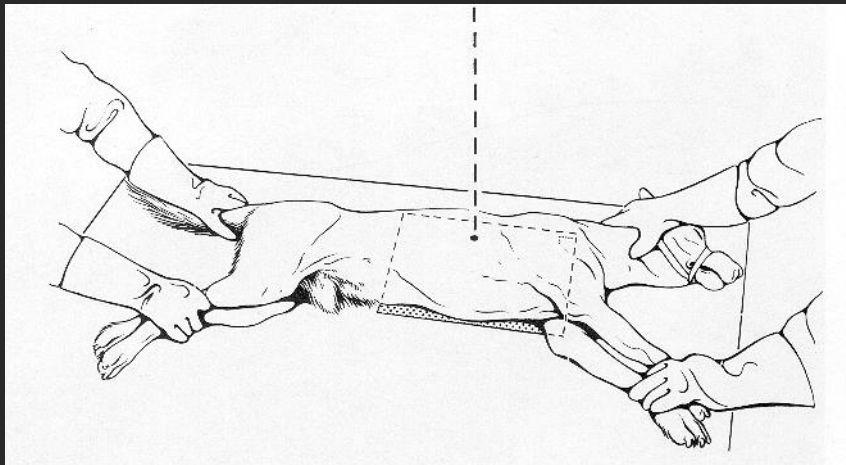
- Correlare i segni radiografici a:
  - anamnesi
  - segni clinici
  - esami di laboratorio
- No diagnosi certa -> DD
  - > indagare con modalità diagnostiche più avanzate



# PARETE TORACICA

- **TECNICA:**
  - almeno due proiezioni ortogonali con tecnica ad alti kVp e bassi mAs
  - se il contrasto tra i tessuti è basso si può modificare la tecnica aumentando i mAs e diminuendo i kVp
- **Fistulografia:** 5 ml circa di soluzione iodata al
- 10%
- **Proiezioni supplementari:** 2 laterali, VD e DV,
- oblique, raggio orizzontale

# PARETE TORACICA



# Tecnica

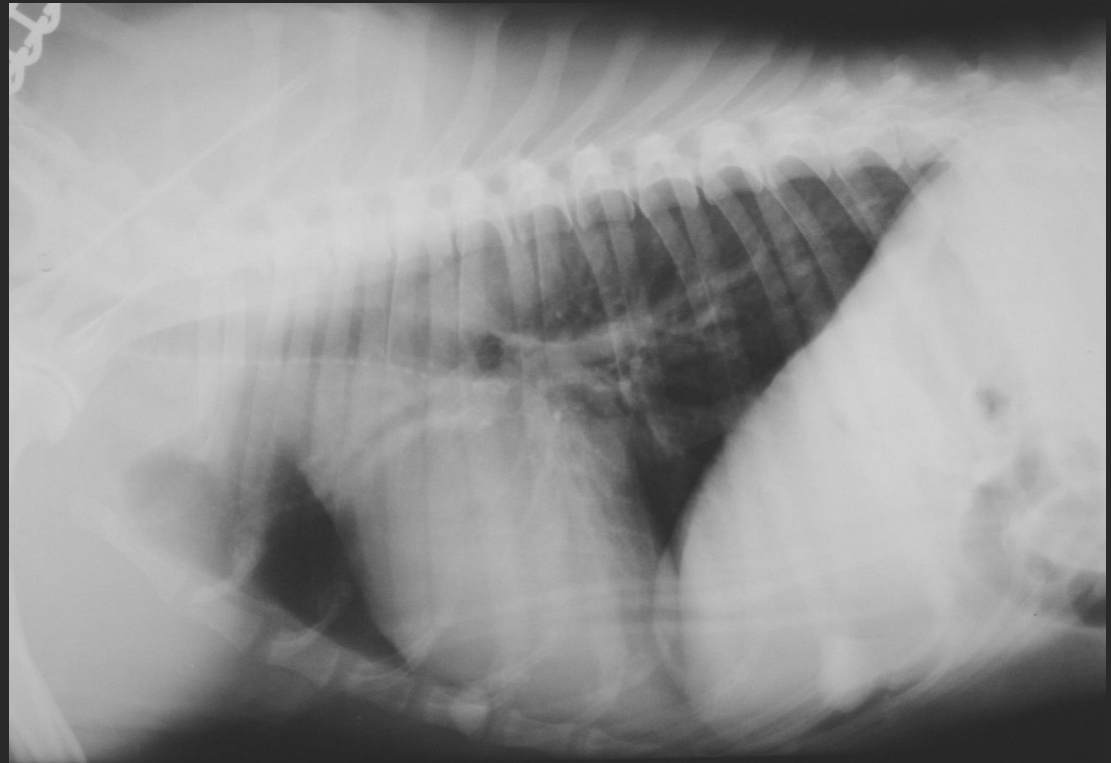


# PARETE TORACICA

## Segni radiografici

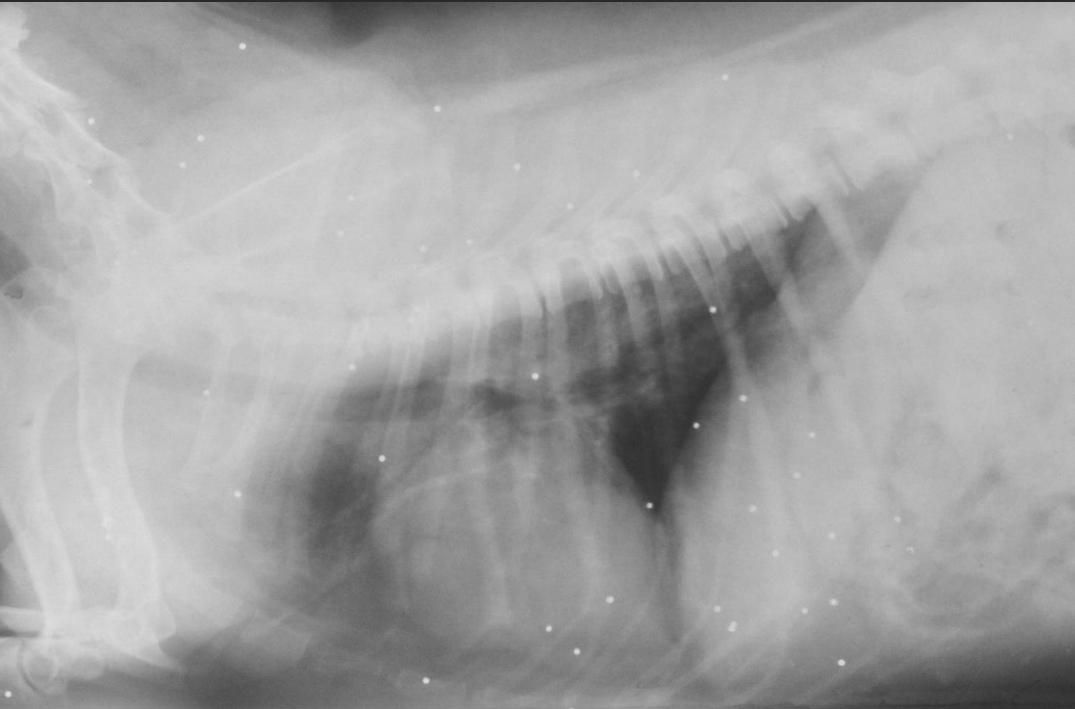
### Opacizzazioni focali extracostali (cute/sottocute):

- capezzoli
- ingorghi mammari
- neoplasie
- ascessi e granulomi
- lesioni crostose
- c.e. (es. proiettile)
- zecche





# PARETE TORACICA



# PARETE TORACICA

cane, femmina, controllo per mets



In caso di dubbio marcare il capezzolo con bario o struttura metallica e ripetere lo studio radiografico



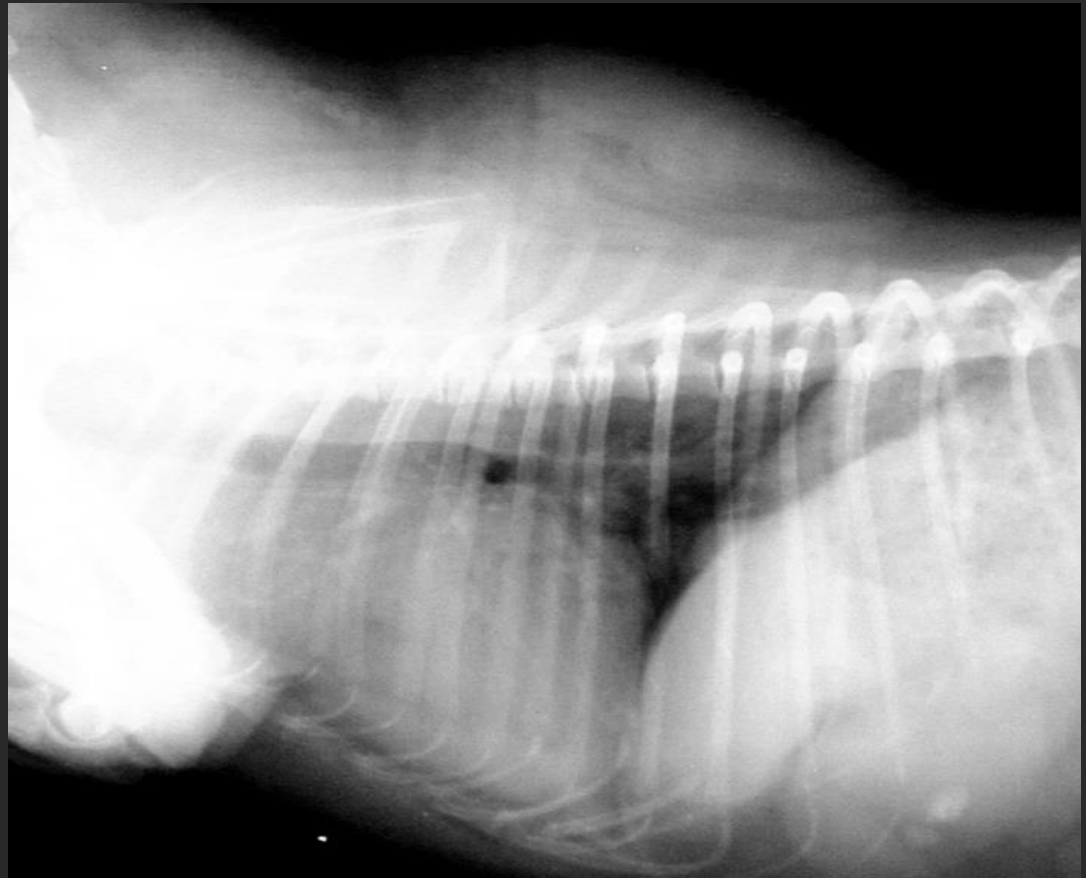


# PARETE TORACICA

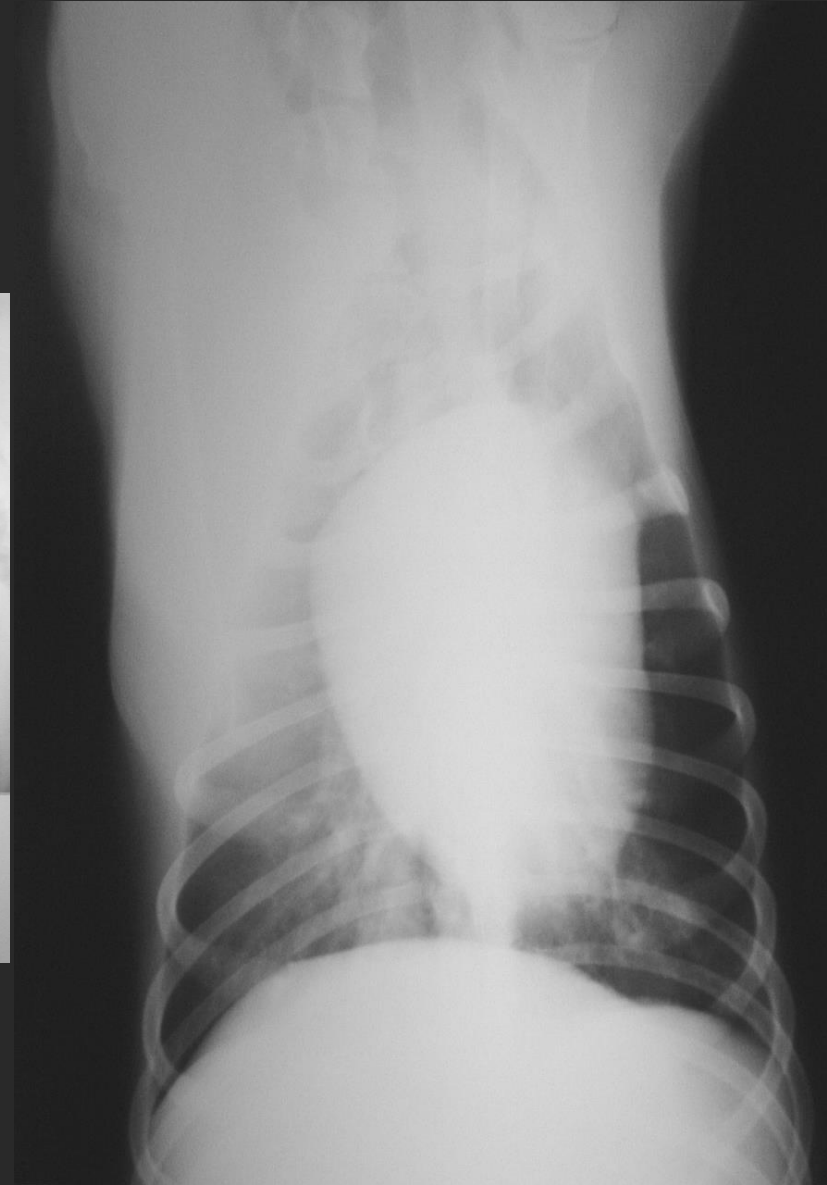
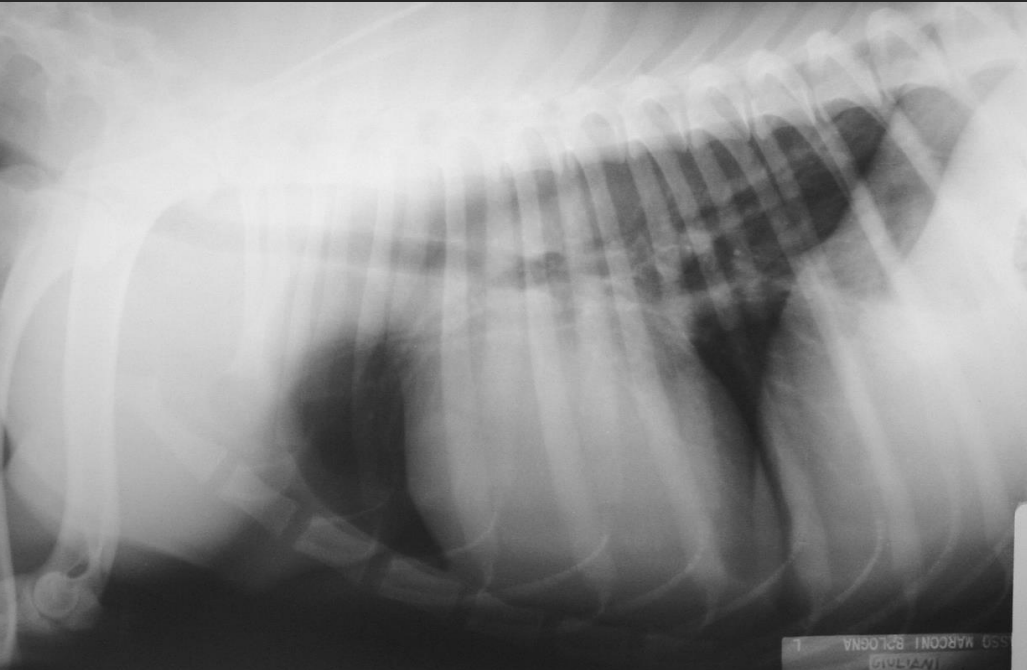
- **Segni radiografici**

- **Opacizzazioni extracostali diffuse (cute/sottocute):**

- cellulite
- edema
- infezione
- contusione/emorragia
- neoplasia
- ipodermoclisi

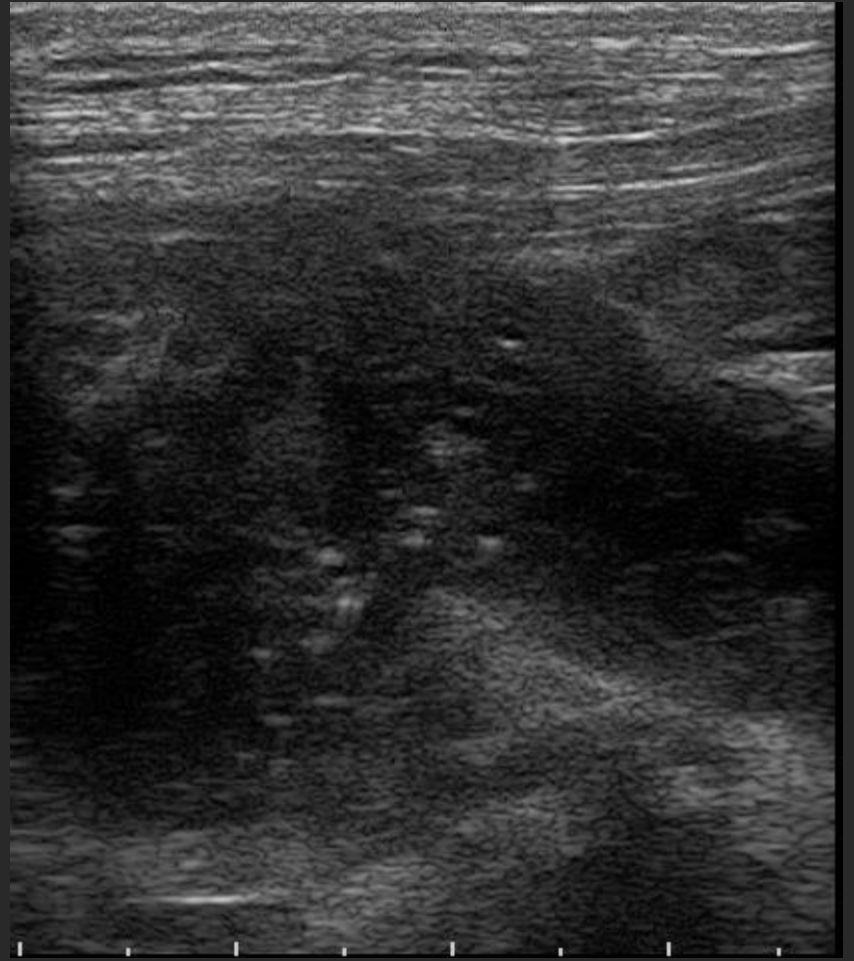
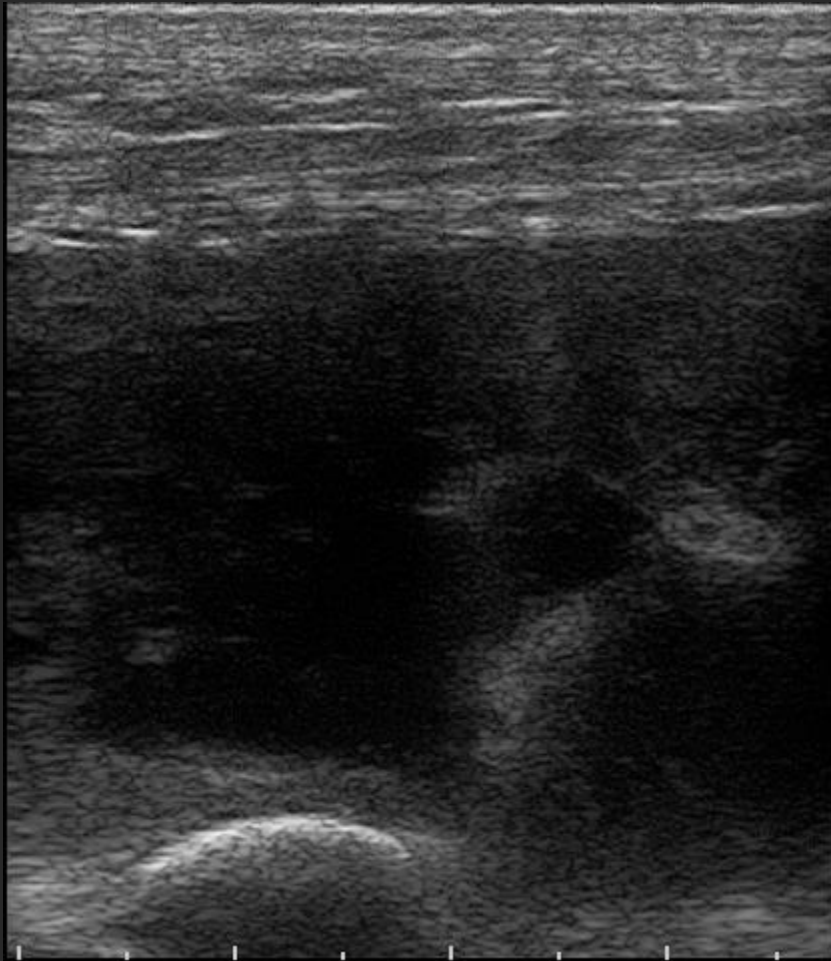


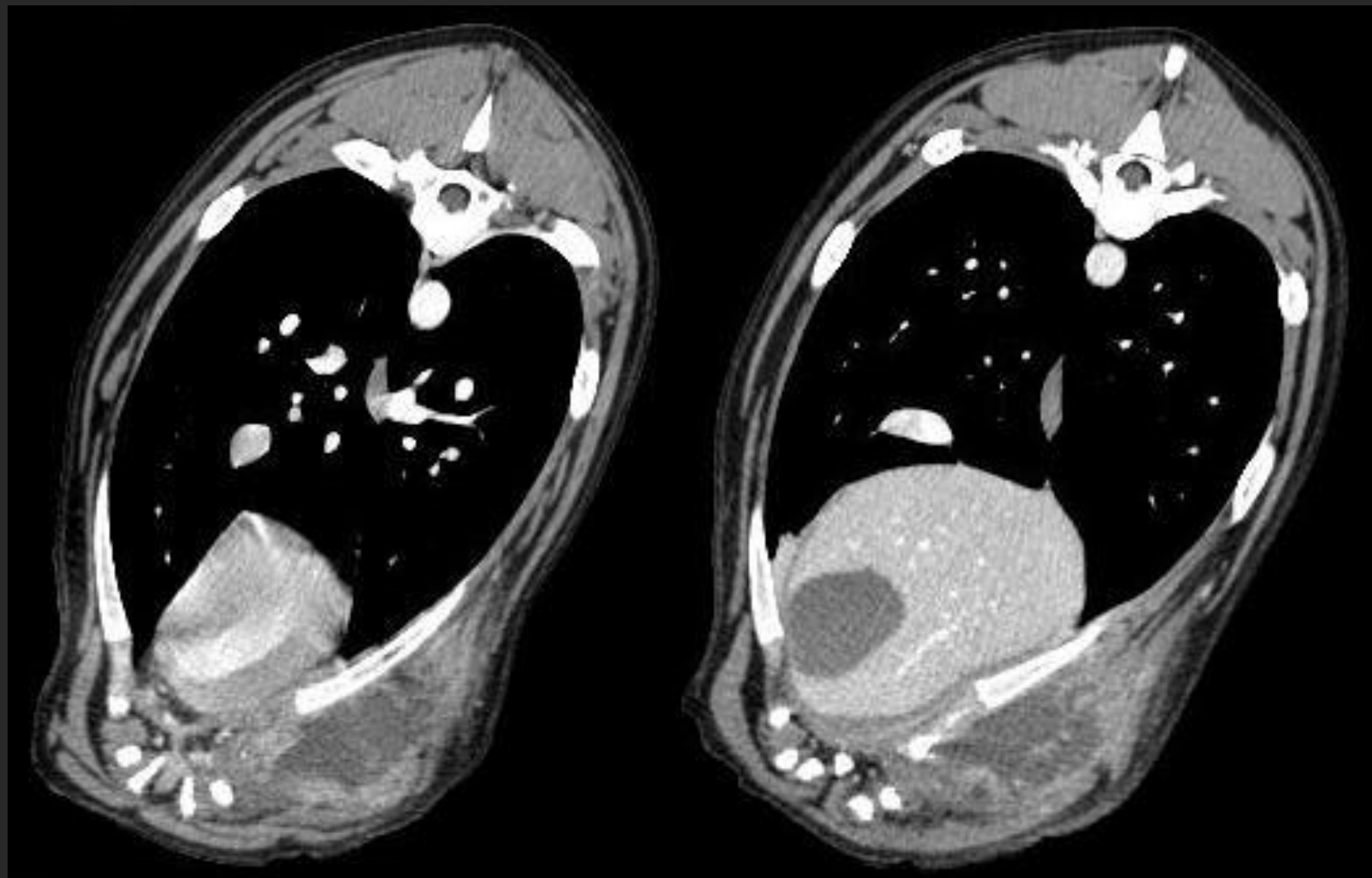
# PARETE TORACICA



# PARETE TORACICA

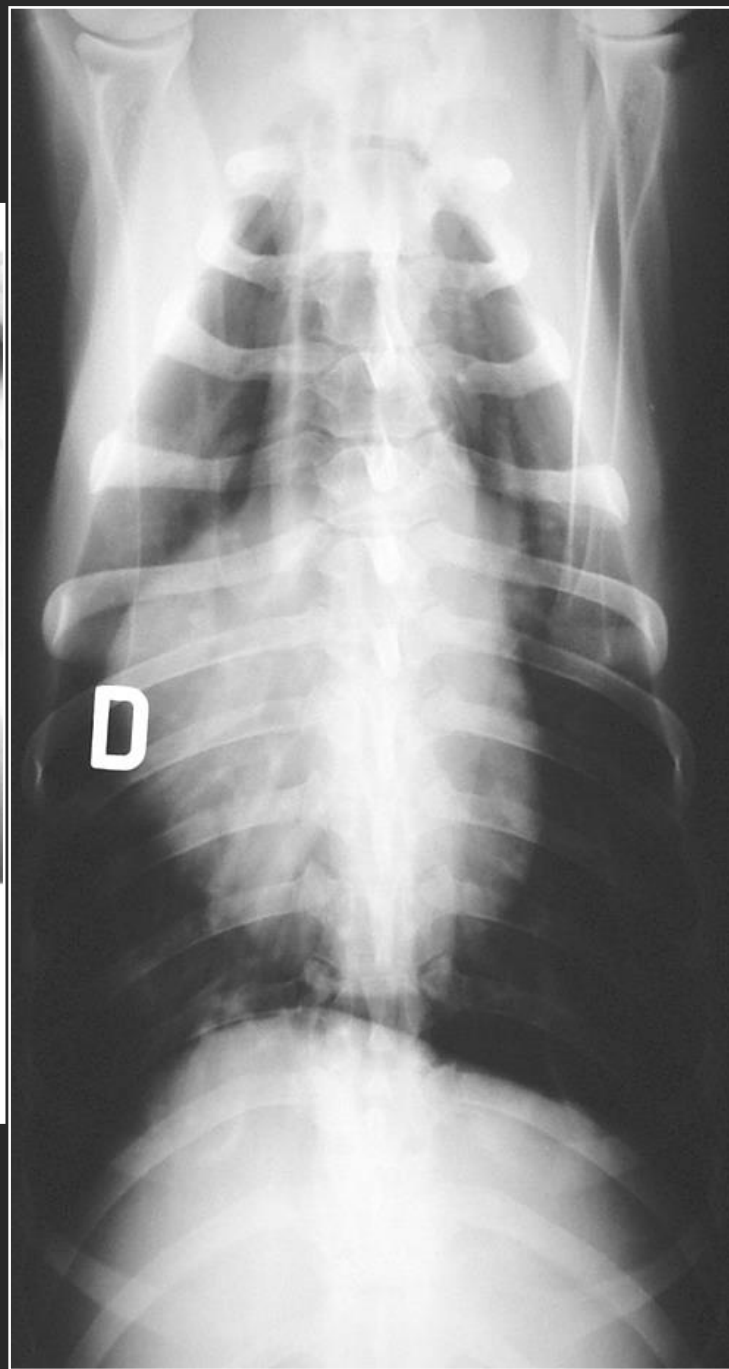
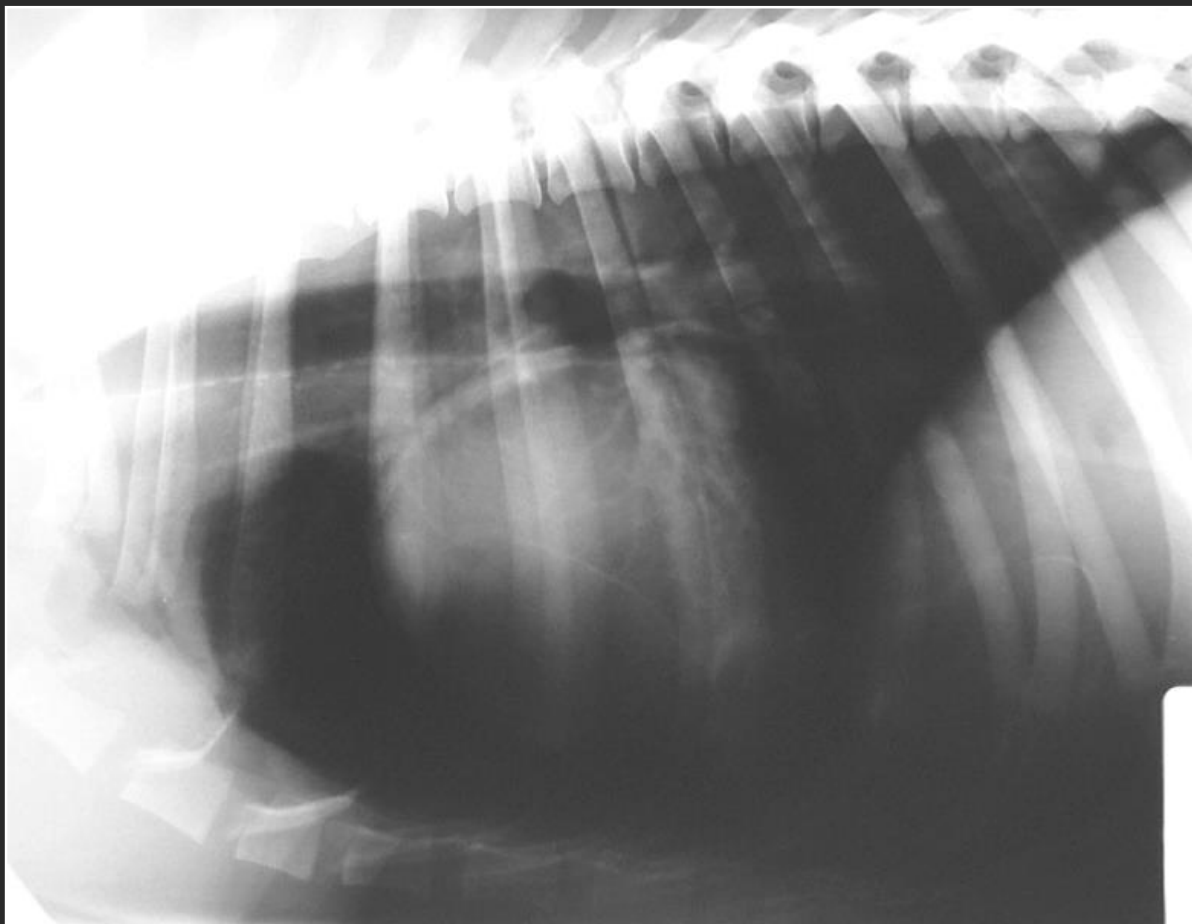












# PARETE TORACICA

## Segni radiografici

### Radiolucenze extracostali focali

- lacerazioni
- punture o ferita da punta
- lesioni da fratture costali
- ascessi contenenti gas o iniezione di aria
- lipoma

### Radiolucenze extracostali diffuse

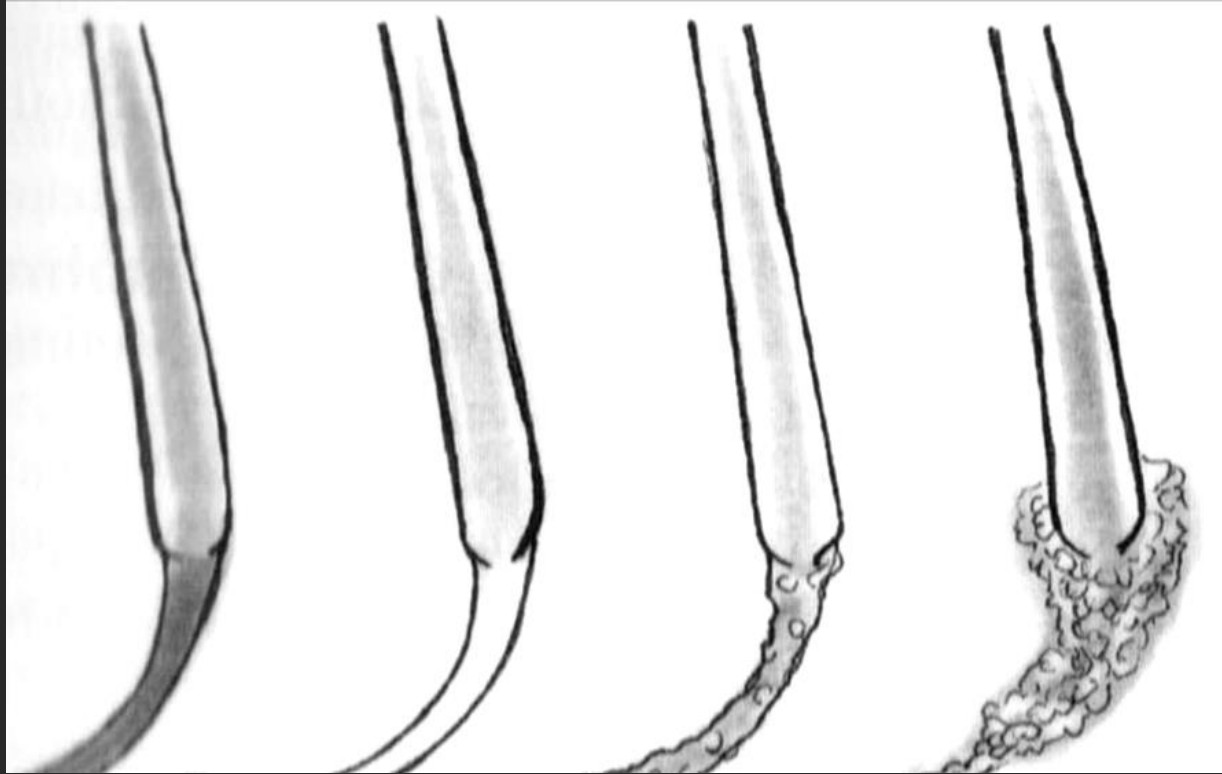
- enfisema s.c.
- obesità





D

# Coste



JM Owens and DN Biery, 1999

# Coste

## Segni radiografici

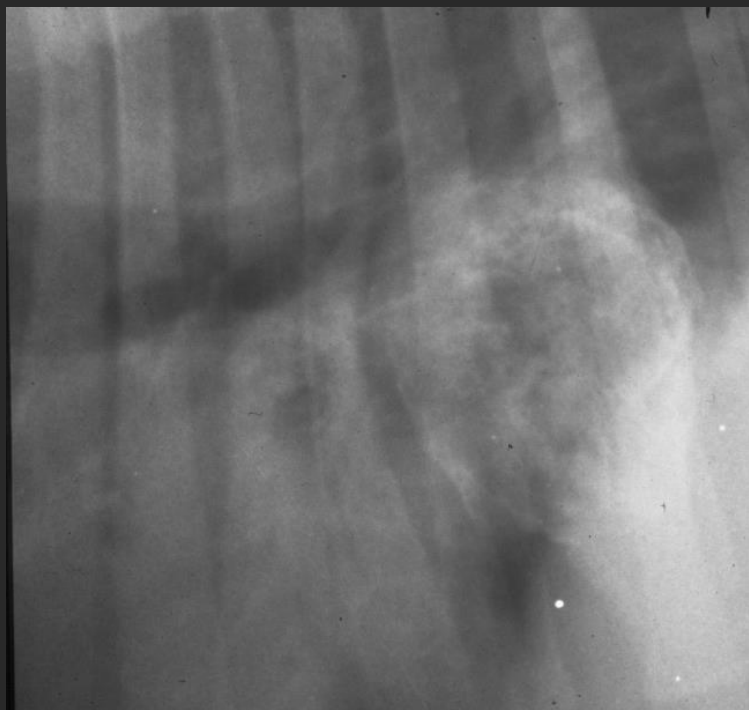
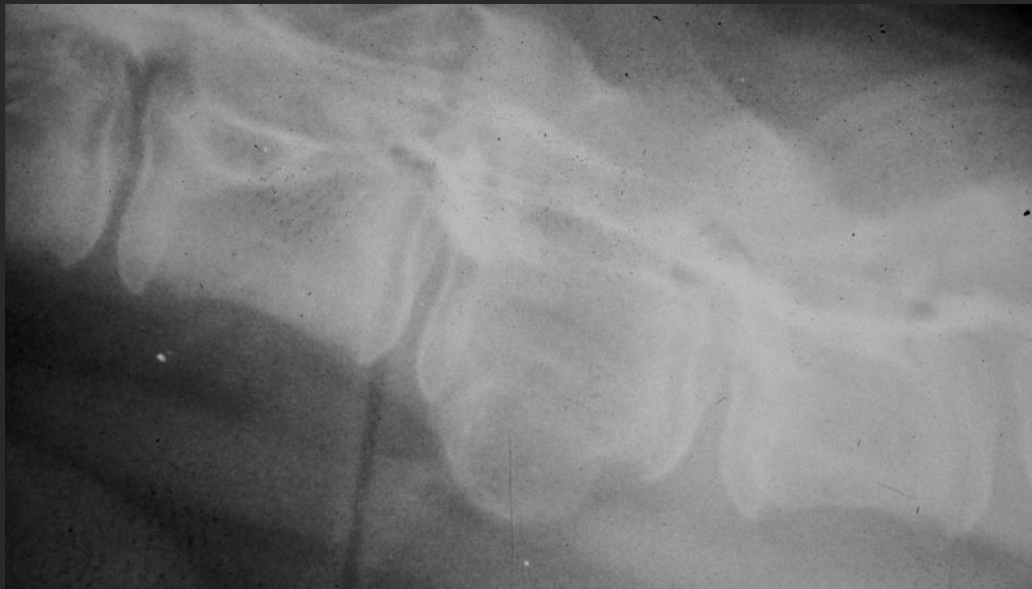
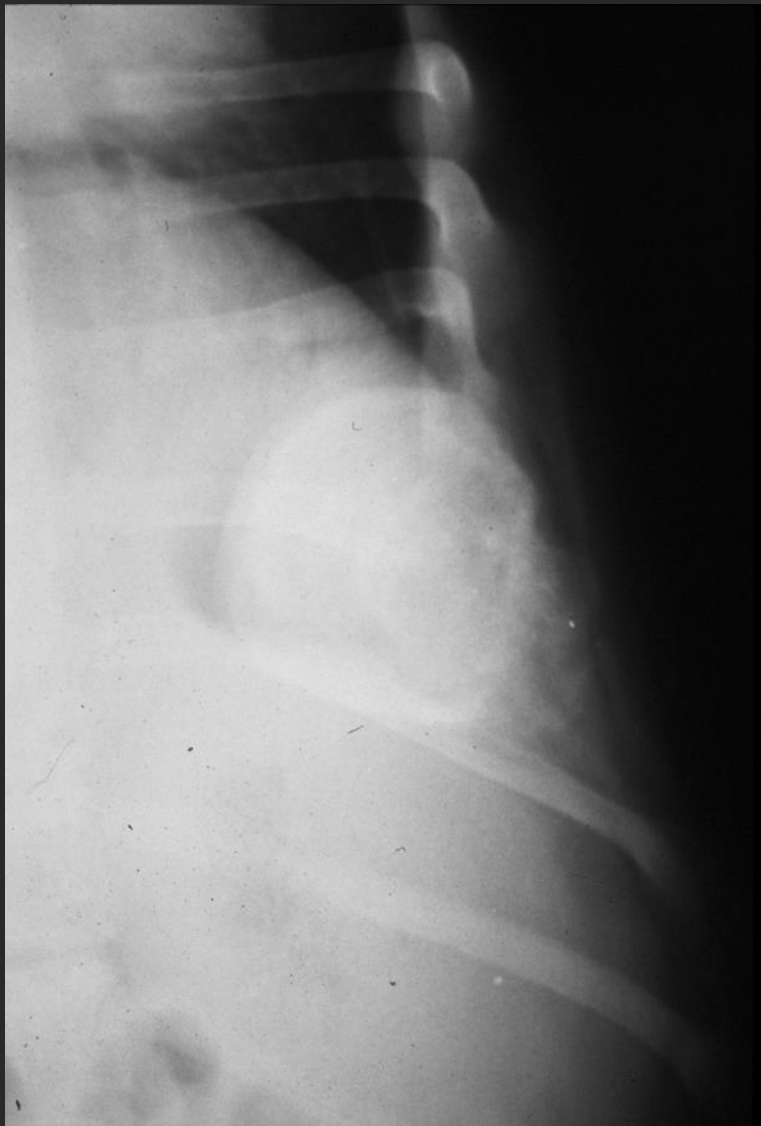
### Coste -> Opacità focali

- neoplasie (condrosarcoma, osteosarcoma, metastasi)
- osteomielite batterica o micotica
- fratture pregresse
- c.e. (proiettile)
- esostosi multiple



### Opacità diffuse

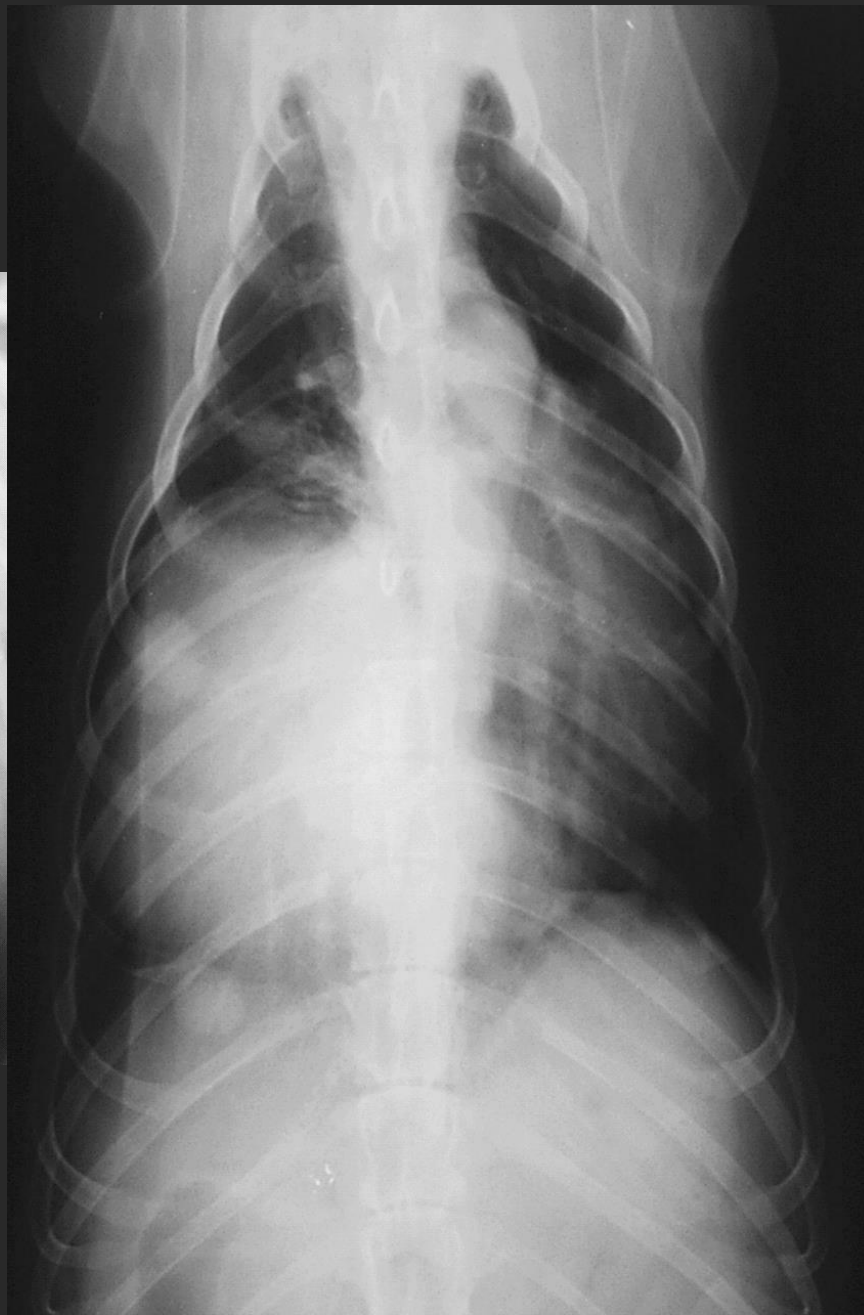
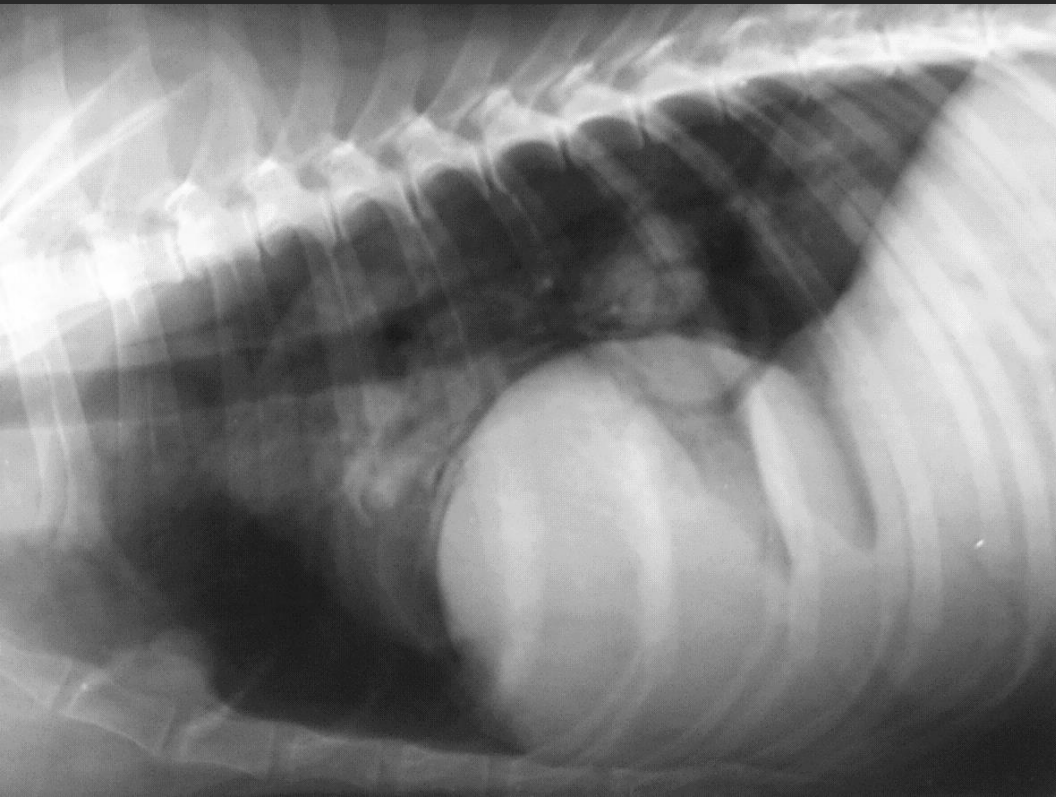
- osteomielite cronica
- coccidioidomicosi (US)

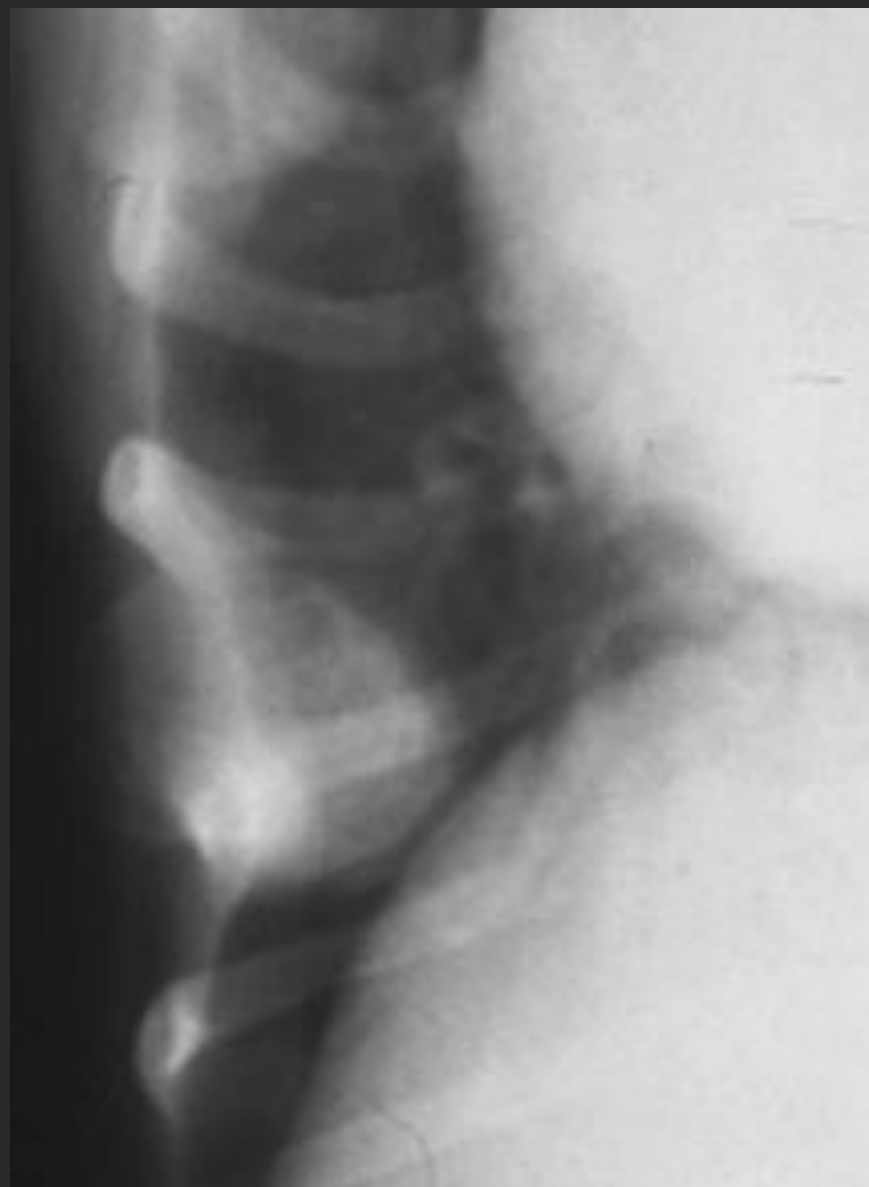


# “Extrapleural sign”

- Angolo  $< 90^\circ$  = lesione polmonare
- Angolo  $> 90^\circ$  = lesione della parete
- Concavità ai bordi della lesione
- Ben visibile quando il raggio colpisce tangenzialmente la lesione quindi a volte sono necessarie proiezioni oblique
- Tendenza a crescere in entrambe le direzioni (interno-esterno)









# Coste

## Segni radiografici

### Coste -> Radiotrasparenza focale

- frattura
- neoplasia (> II°)
- osteomielite

### Radiotrasparenza intercostale

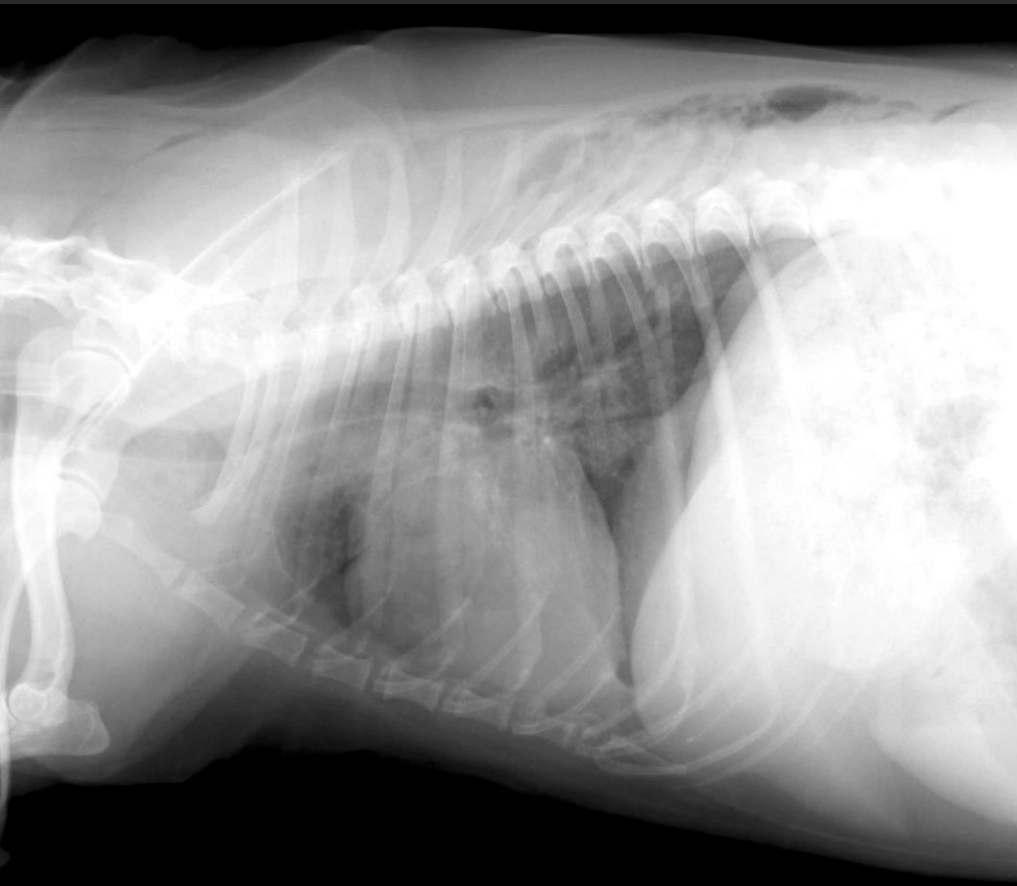
- traumi penetranti

### Opacità tess intercostale

- neoplasia (> I°)
- infiammazione

### Lesioni occupanti spazio

-> spostamento di coste adiacenti, della pleura e del polmone



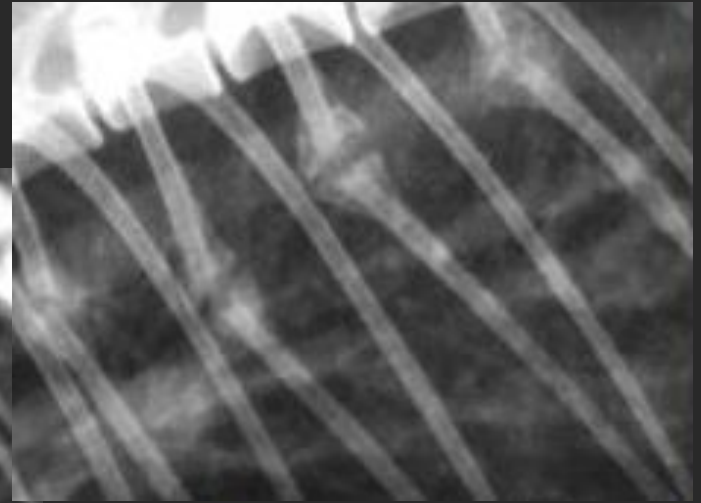
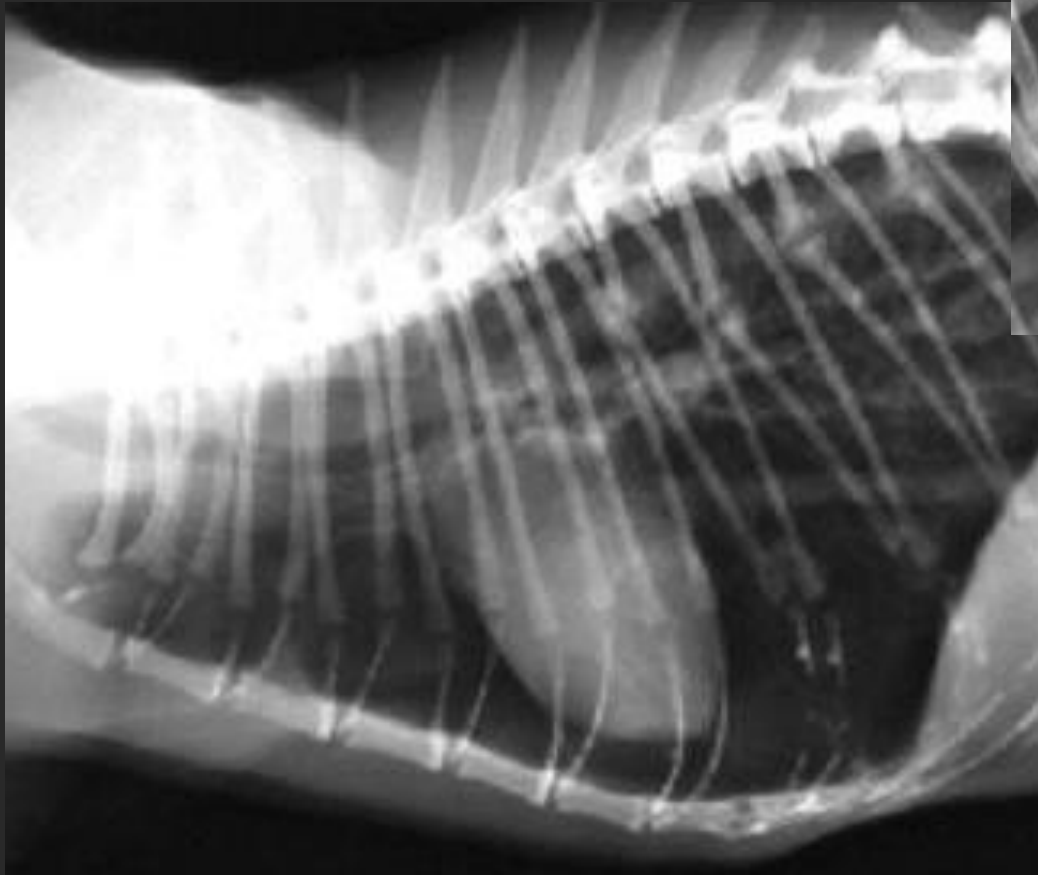
CLINICA

2006 Ja

Acq Tm

/1





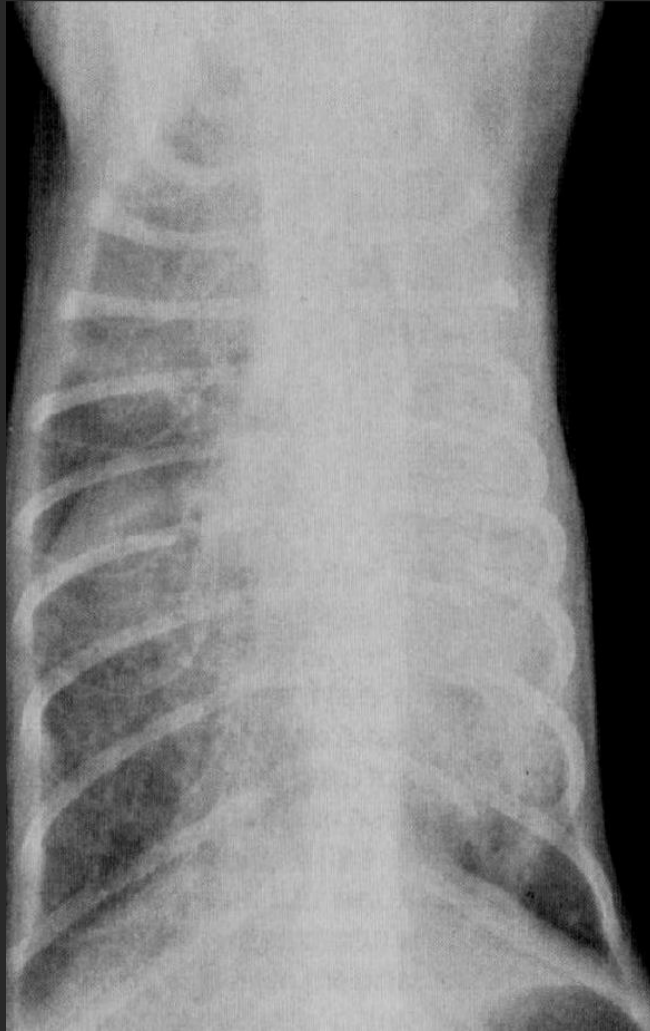




# “Flail Chest”

- Fratture costali multiple
- In due diverse sedi della stessa costola (dorsalmente e ventralmente) ->
- Instabilità della parete toracica ->  
interferisce con la meccanica respiratoria ->  
movimento paradossso della porzione di torace staccata

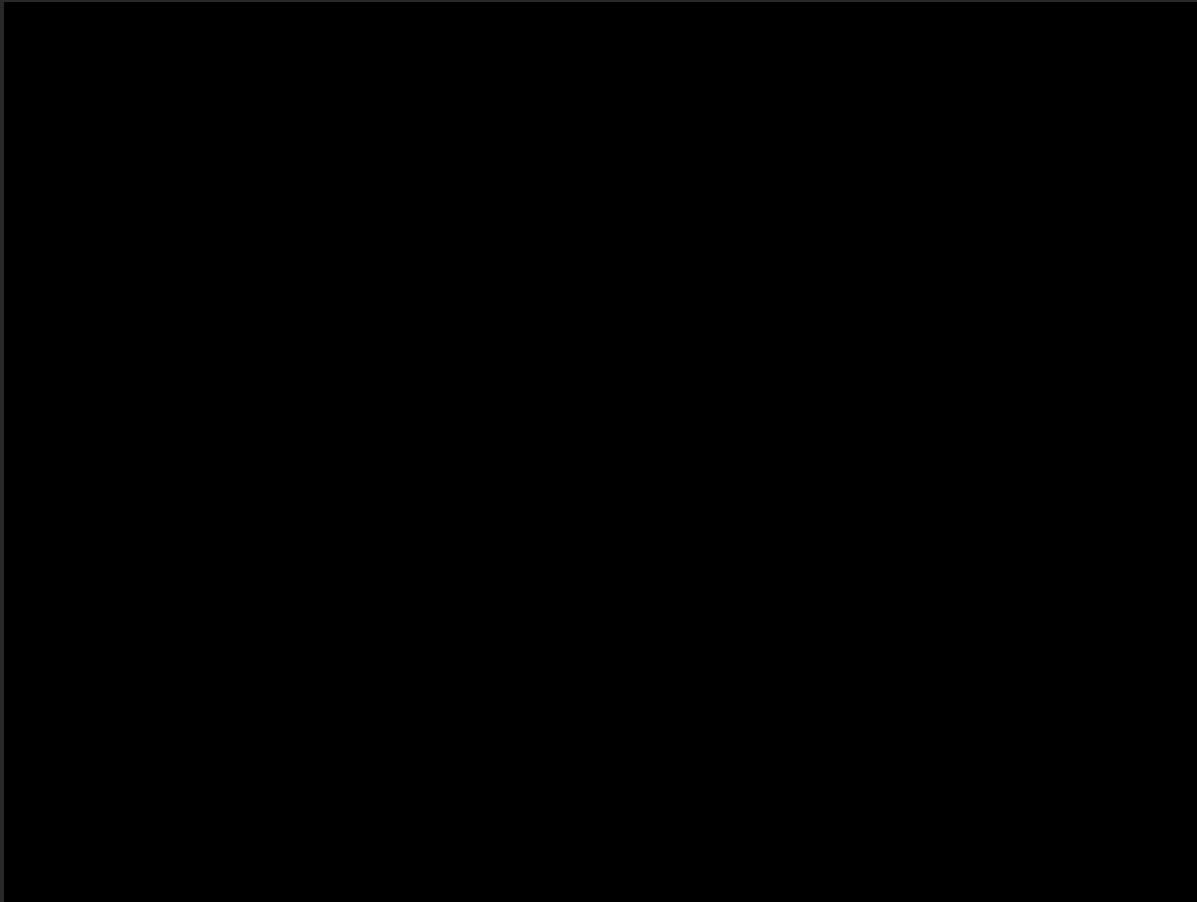
# “Flail Chest”

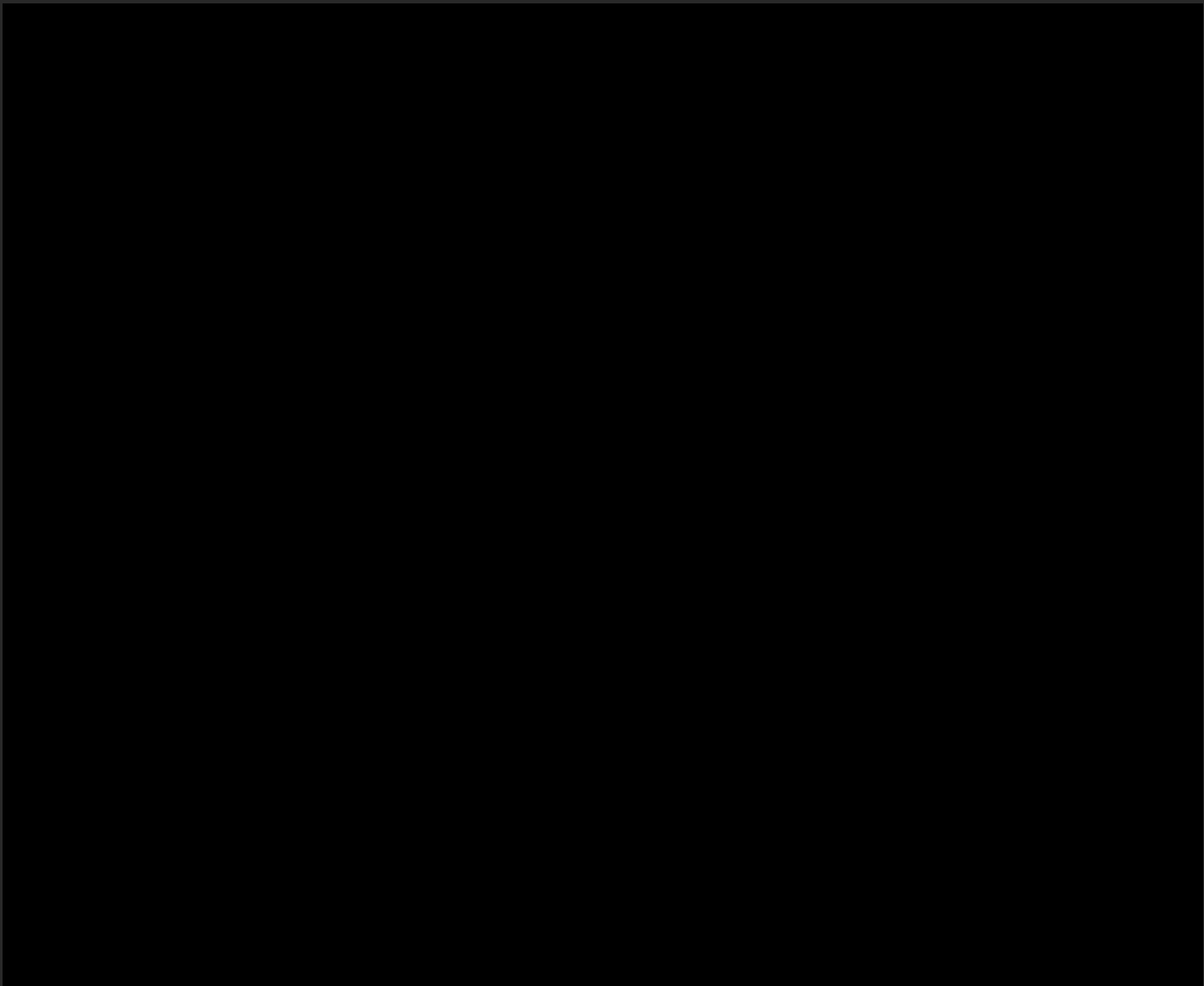


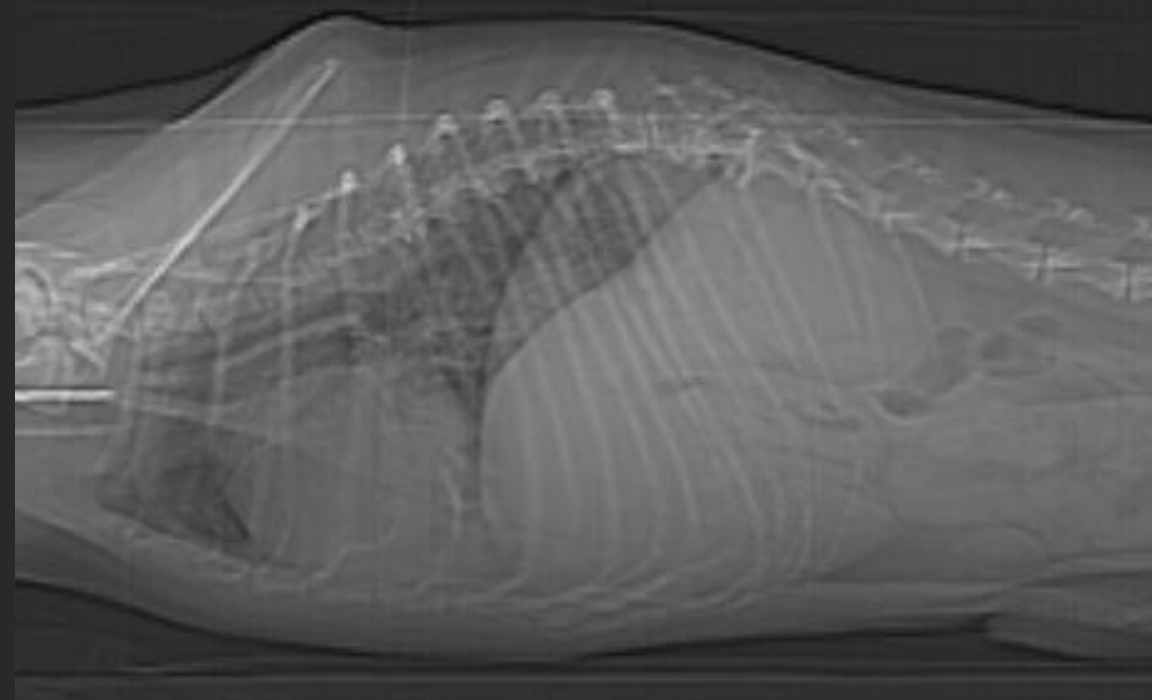
Suter, 1984







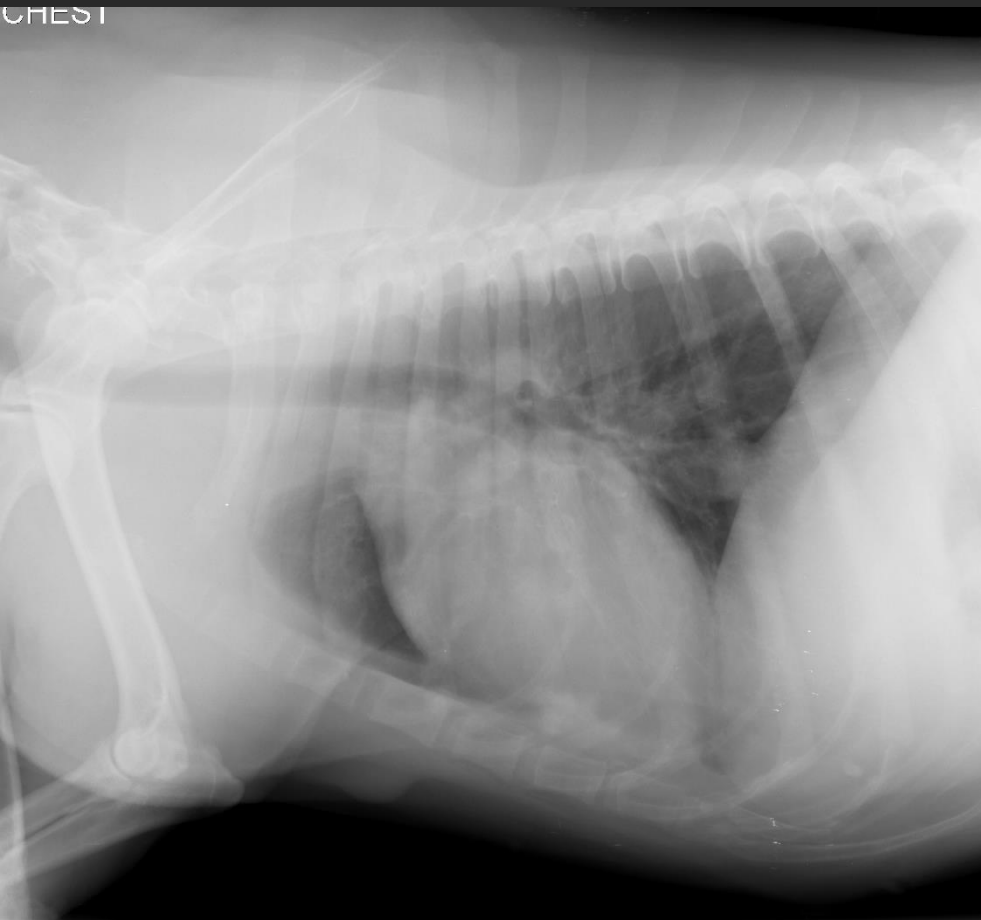








# Ricerca mets - 2 o 3 proiezioni?



CLINICA VETERINARIA

PAV

1998 Jan 01 F 007

2010 Ja

Acq Tm: 08:31:00.0

5  
002/1

ST

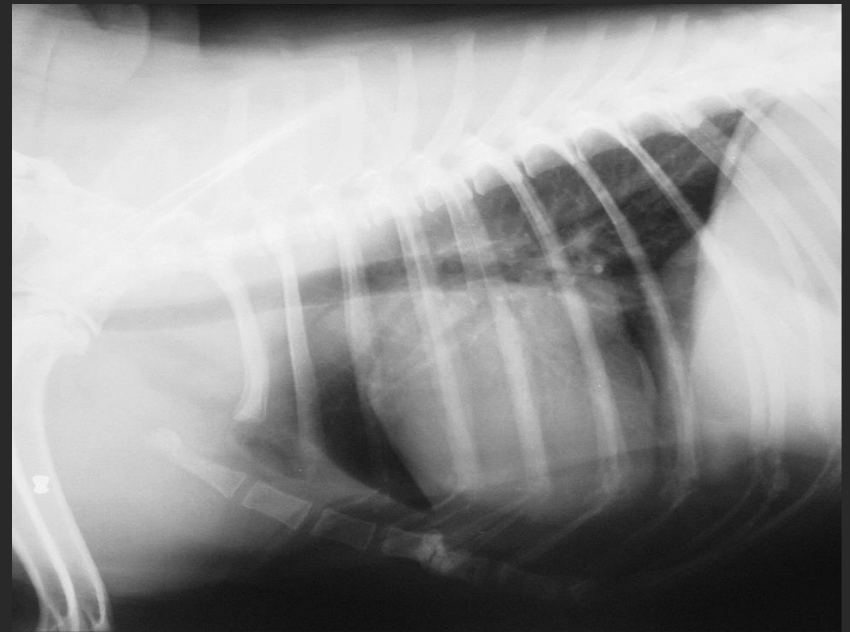
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362 L:1284

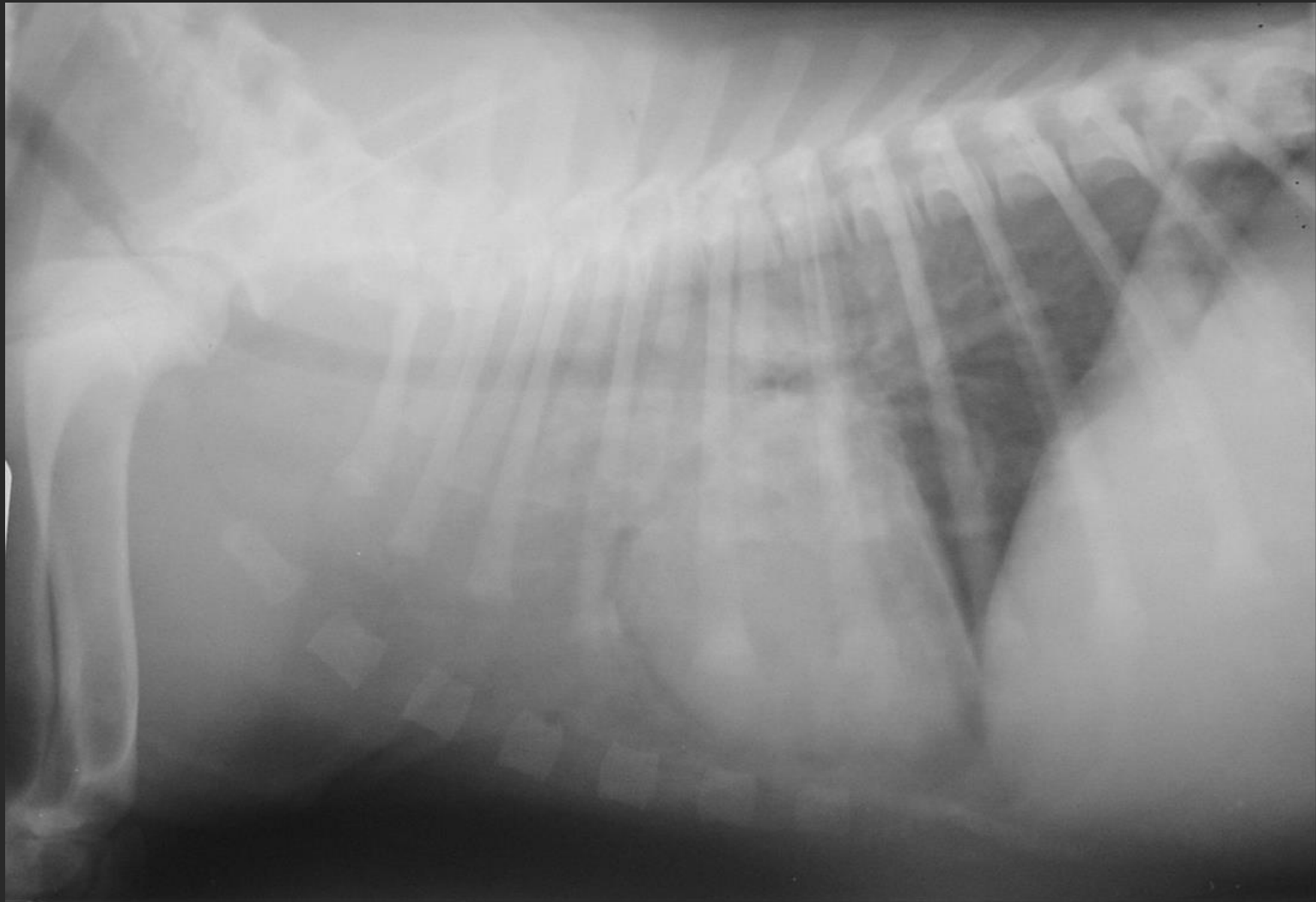
SIZES ARE APPROXIM

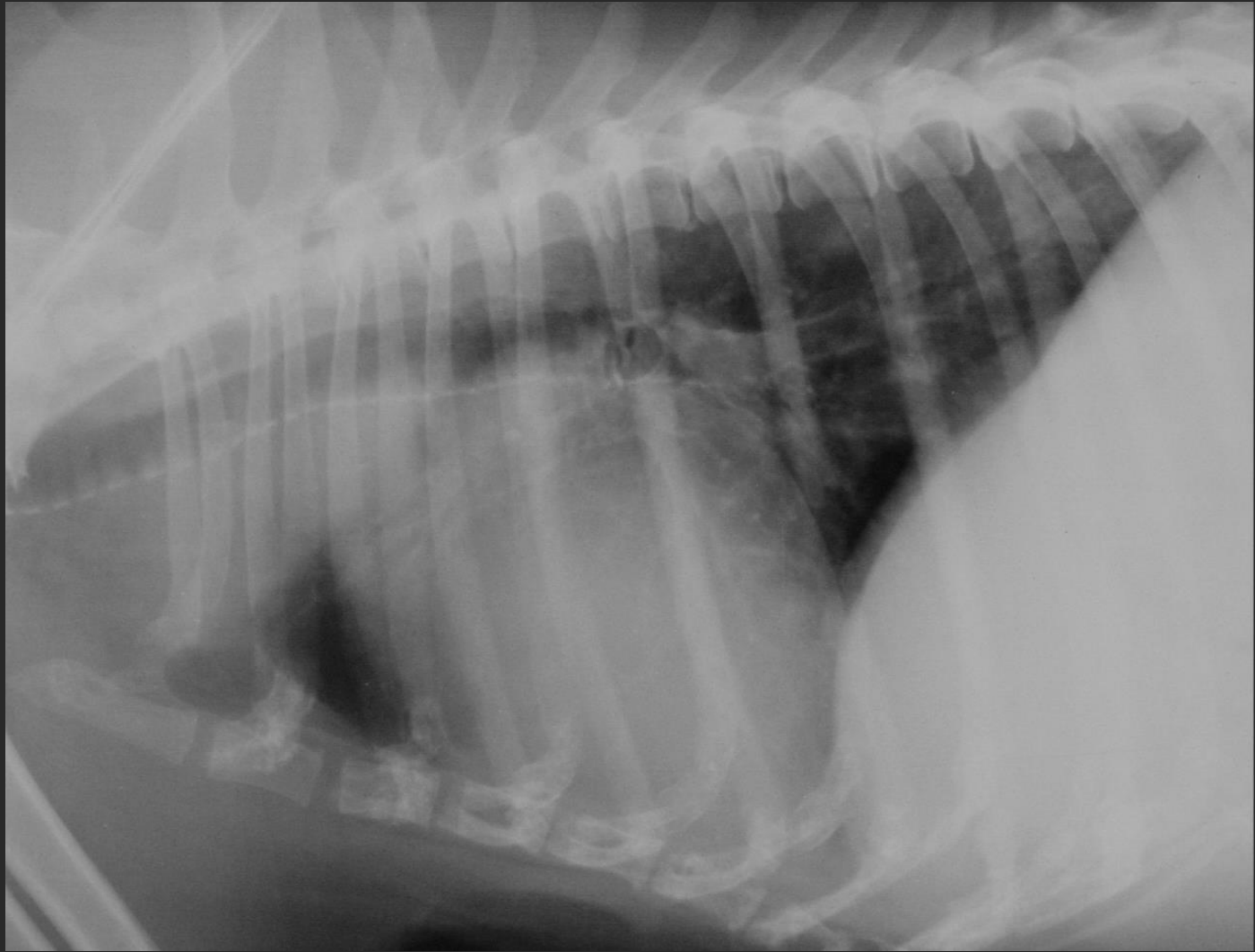


# Sterno

- mineralizzazioni legate all'età
- variazioni in opacità, forma e sede delle sternebre (rare)
- osteomielite cronica
- neoplasie
- traumi
- Pectus excavatum
- Pectus carinatum
- Variazioni di numero
- Disrafismo sternale









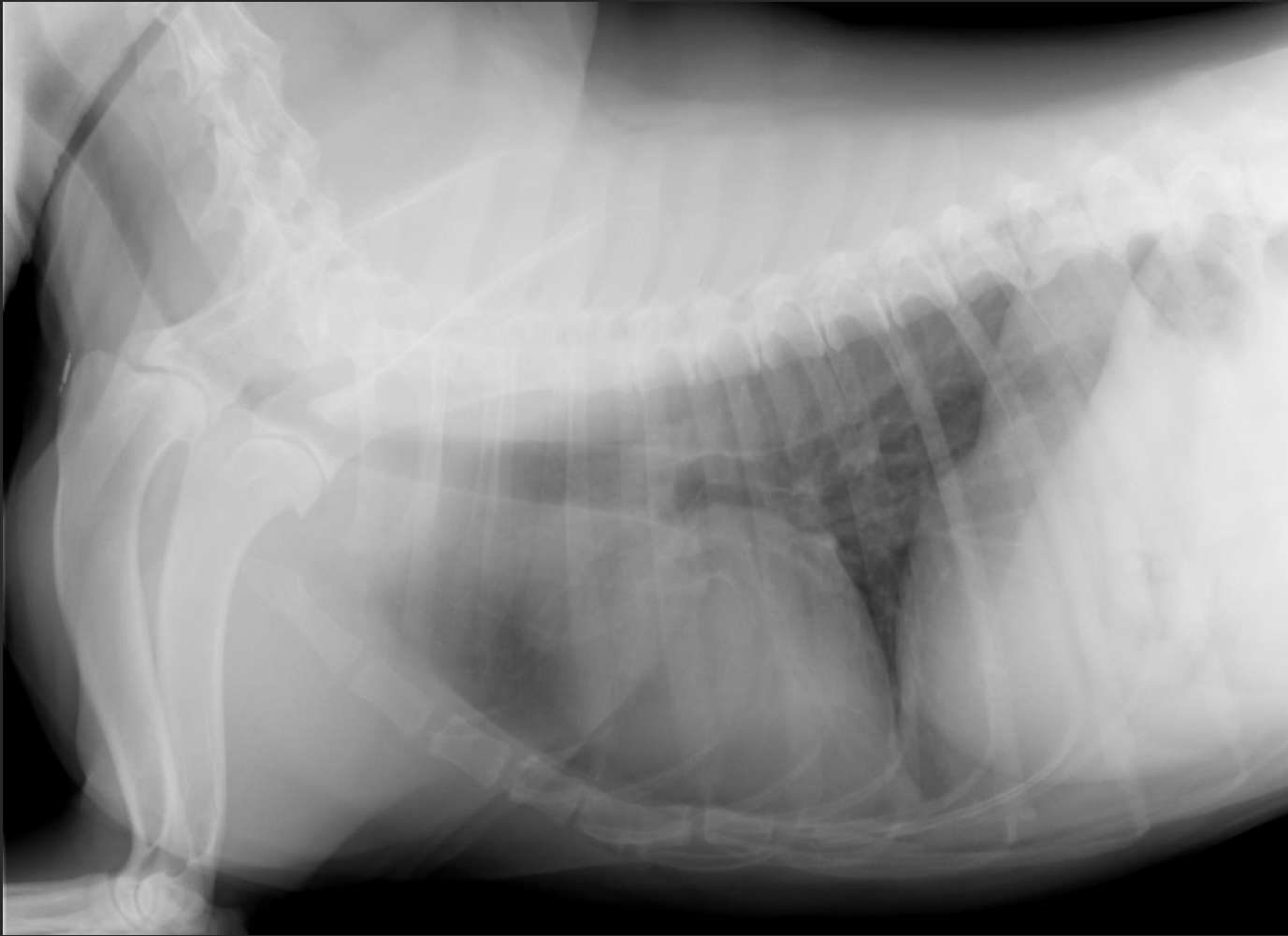






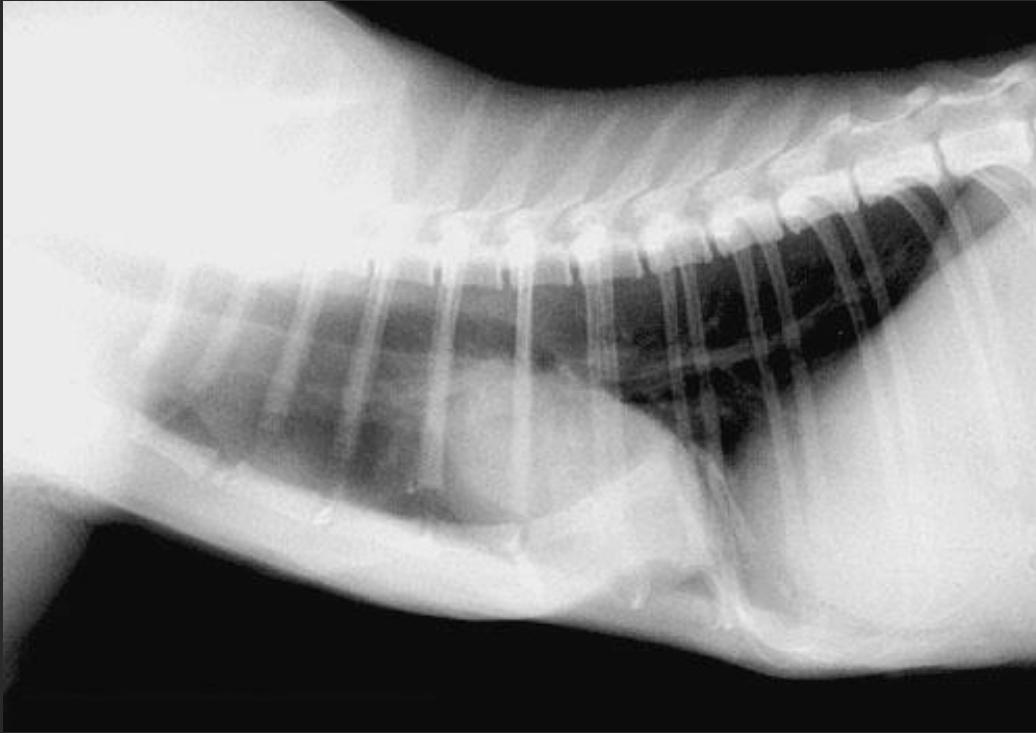




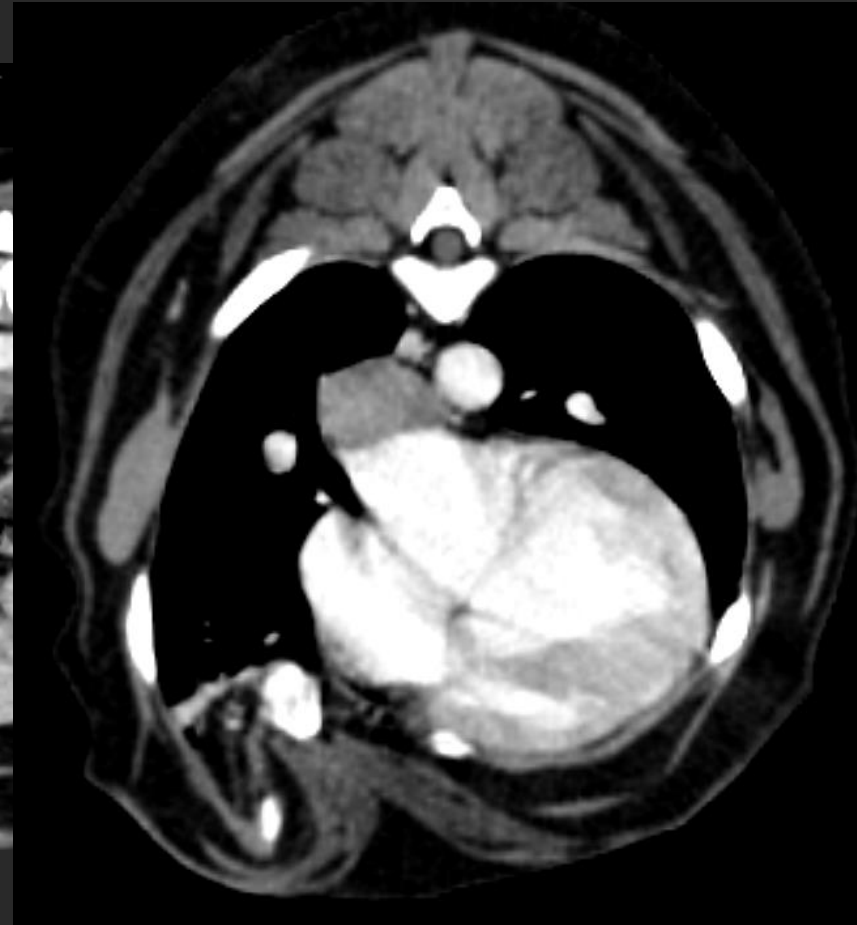
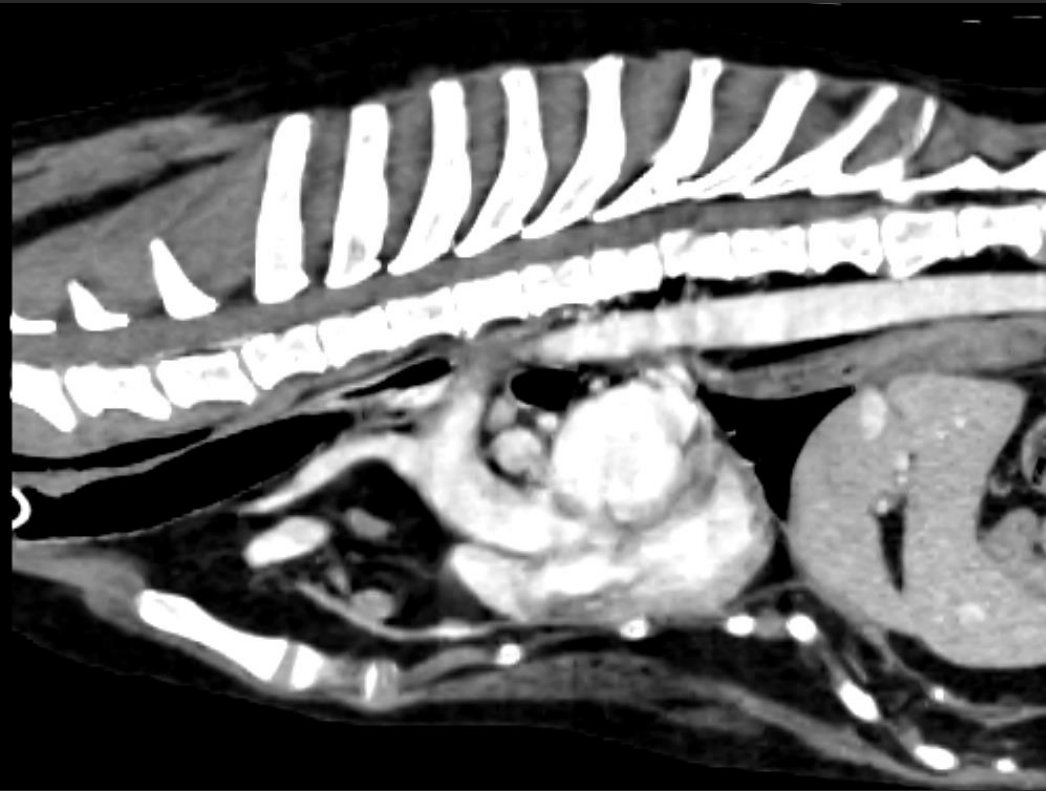


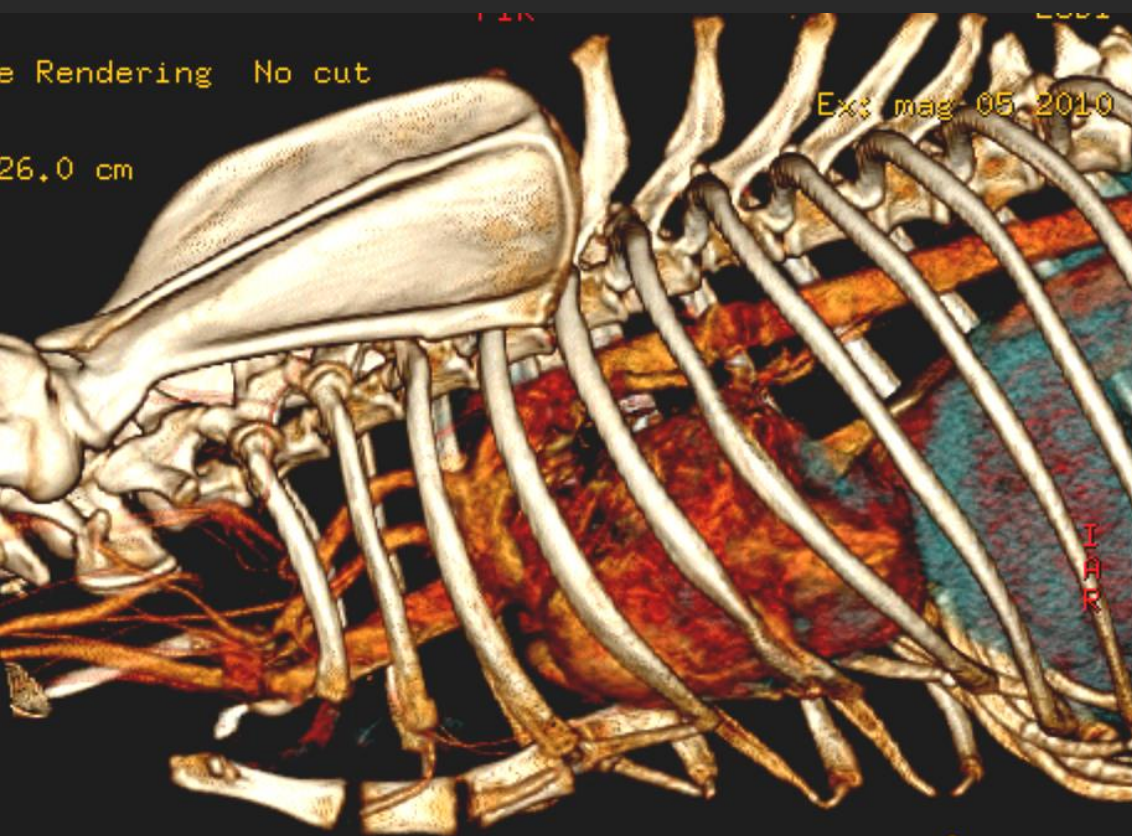


# Pectus excavatum

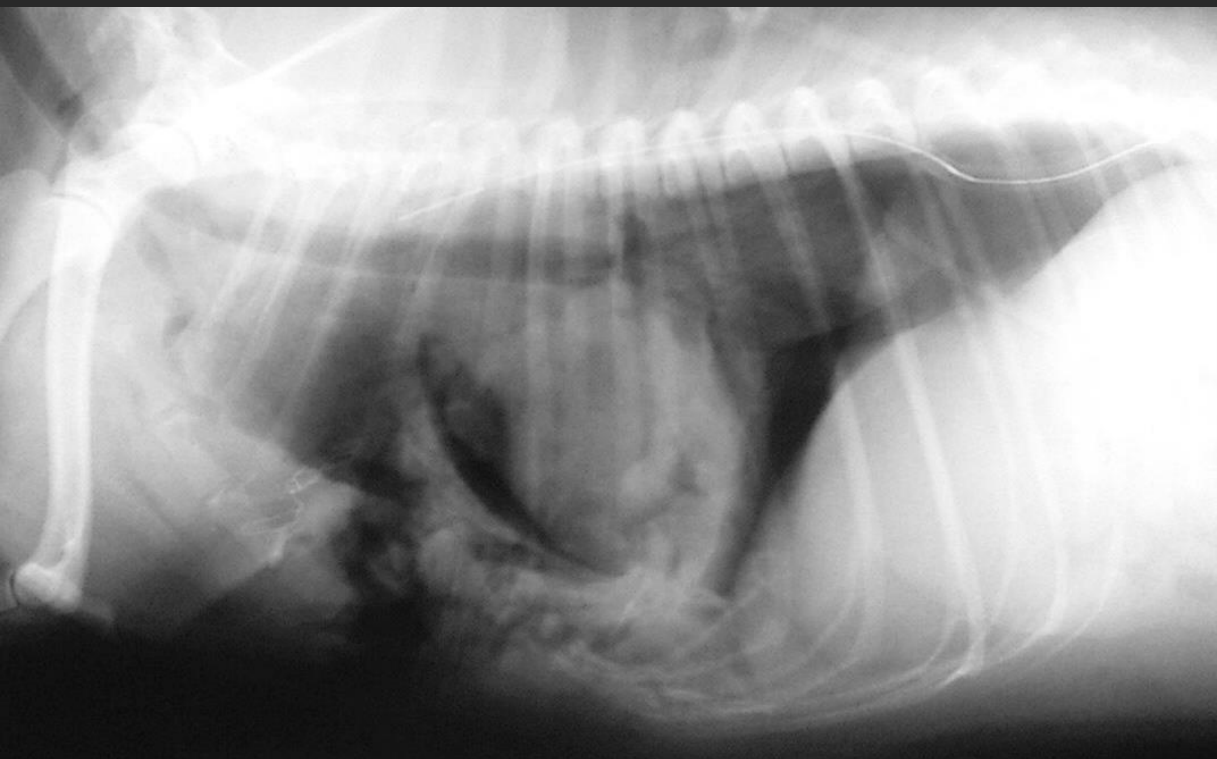


# Pectus excavatum





# Frattura sterno





# Neoplasie sternali

- Tumore primario (raro):
  - osteosarcoma
  - condrosarcoma
- Tumore secondario:
  - invasione sternale di massa mediastinica
  - metastasi

# Boxer, maschio, 7 anni

