









SEPTIC ARTHRITIS

RAPID JOINT DESTRUCTION

SERIOUS CAUSE OF MORTALITY

INOCULATION:

DIRECT

CONTIGUOUS

BACTEREMIA

PATHOGENESIS:

ENDOTOXINS, EXOTOXINS

TNF, IL-1, IL-6, ICAM-1

PHAGOCYTOSIS

NEUTROPHILS AUTOLYSIS

SEPTIC ARTHRITIS -PATHOGENESIS

PROTEASE ACTIVATION

COLLAGEN LOSS

PROTEOGLYCAN LOSS

CHONDROCYTES NECROSIS - 48 HR

SYNOVIAL NECROSIS

ABCESSES

GRANULATIONS, PANNUS

BONE NECROSIS

PROGRESSION

HOST FACTORS: LOCAL AND SYSTEMIC

MICROBIAL FACTORS

SEPTIC ARTHRITIS

CLINICAL PRESENTATION:

SINGLE JOINT 80%, POLYARTICULAR 20%

KNEE 40%, HIP 20%, SHOULDER 15%

AFEBRILE ONLY 20%

JOINT PAIN, SWELLING,

WARMTH, REDNESS

COMORBIDITY RISK FACTORS:

**AGE, PROSTHETIC JOINT, JOINT SURGERY
ARTHROCENTESIS, IV DRUG ABUSE, RA, DM,
MALIGNANCY, SLE, SICKLE CELLS, SKIN
INFECTION, HEMOPHILIA, ANEMIA, CHR.
LIVER DIS.**

SEPTIC ARTHRITIS

MORTALITY: 80% POLYARTICUL., 6% MONO
POLYARTICULAR - 84% PREEXISTING J. DIS
***S. AUREUS* - 80%**

CHILDREN

PRESENTATION:

PSEUDOPARALYSIS (LIMIT. J. MOVEMENT)
IRRITABILITY
LOW GRADE OR NO FEVER
LARGE JOINTS OF LEGS
ADJACENT OSTEOMYELITIS
OR OTHER INFECTIONS

SEPTIC ARTHRITIS

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CHILDREN - BACTERIOLOGY

NEONATES (< 6 MONTHS) AND > 2 YEARS:

S. AUREUS AND GROUP B
STREPTOCOCCI

FROM 6 MONTHS TO 2 YEARS:

H. INFLUENZAE AND *KINGELLA KINGAE*

POLYARTICULAR:

NEISSERIA GONORRHOEAE

SYNOVIAL GRAM STAIN - POSITIVE 1/3

SYNOVIAL CULTURE - POSITIVE 2/3

BLOOD CULTURE - POSITIVE 50%

ORGANISM IS NOT IDENTIFIED - 1/3

SEPTIC ARTHRITIS IN THE ELDERLY

50% OF ADULT SEPTIC ARTHRITIS > AGE 60

75% - IN JOINTS WITH PRIOR ARTHRITIS:

HIP, KNEE OR SHOULDER

SIGNIFICANT COMORBIDITY: DM, RF, SOL ...

10 % ARE FEBRILE AND ONLY 1/3 - WBC ↑

ESR ↑↑↑

JOINT AND BLOOD CULTURES ARE POSITIVE

SOURCE - 3/4 FROM OTHER FOCUS:UTI, LUNG

POOR OUTCOME: SEVERE JOINT DAMAGE

30% OSTEOMYELITIS

50% POOR FUNCTION

SEPTIC ARTHRITIS IN RA

INCREASED RISK, ANNUAL INCIDENCE 0.5%

POLYARTICULAR - 50%

PERIARTICULAR INVOLVEMENT

FEVER AND WBS ↑ ARE NOT PROMINENT

ESR ↑ AND DECLINES WITH THERAPY

BLOOD CULTURE IS POSITIVE 50-80%

S. AUREUS - POLYART. 93%, MONOART. 72%

SOURCES OF INFECTION: RHEUM. NODULES,
FOOT CALLUSES, LUNG, UTI

RECURRENCE IN THE SAME JOINT - 1/3

MORTALITY: POLYART. 49%, MONOART. 16%

SEPTIC ARTHRITIS IN DRUG ABUSERS

1/3 OF SEPTIC ARTHRITIS - IN DRUG ABUSERS

HIV POSITIVITY

PREDOMINANTLY - AXIAL JOINTS

S. AUREUS, ENTEROBAC, P. AER, SERRATIA

CANDIDIASIS (CONTAMINATED HEROIN):

OCULAR, SKIN, COSTO-CHONDRAL OR SCJ

GRAM-NEGATIVE JOINT INFECTION:

INDOLENT AND DIFFICULT TO DIAGNOSE

ESR , WBC , 99-Tc BONE SCANS POSITIVE

SEPTIC ARTHRITIS YATROGENIC

AFTER ARTHROSCOPY 0.04%-4%

INCREASED RISK:

I/ARTICULAR STEROIDS

PROLONGED TIME OF ARTHROSCOPY

MULTIPLE EXCISIONS

SHORT TOOLS DESINFECTION TIME

S. AUREUS, *S. EPIDERMIDIS*, GR-NEGATIVE

ARTHROCENTHESIS+I/A STEROIDS <0.01%

SIGNS: PAIN, ERYTHEMA, FEVER, SWELL

1-2 WEEKS AFTER PROCEDURE

MAY BE MILD IN UNDERLYING DISEASE

SEPTIC ARTHRITIS IN PROSTHETIC JOINTS

EARLY INFECTION <12 MONTHS - 2%

LATE INFECTION >12 MONTHS - 0.6%

LEADS TO PROTHESIS LOSS AND SEPSIS

RISK FACTORS: RA, PSORIASIS, INFECTION,
STERIODS, OPERATION TIME, LARGE
GRAFTS, DELAYED HEALING

TO REDUCE INFECTION RATE:

PERIOPERATIVE ANTIBIOTICS

CLEAR AIR SYSTEM

IMPROVED TECHNIQUE AND EXPERIENCE

S. AUREUS 50, MIXED 33, GR-10, ANAER. 5%

SEPTIC ARTHRITIS IN PROSTHETIC JOINTS

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TREATMENT OPTIONS:

1. REIMPLANTATION (38% RECURR., RA- 60%)
2. LONG TERM ANTIBIOTICS
3. EXCISION ARTHROPLASTY +/- FUSION
4. ARTHROTOMY+PROTHESIS REMOVAL

ANAEROBIC INFECTION

UNCOMMON -1% OF SEPTIC ARTHR. CASES

WHEN? TRAUMA, PROSTHESIS, IMMUNOSUP.

GASTR-INTEST SURGERY FOR MALIGNANCY

PEPTOCOCCUS, PEPTOSTREPTOCOCCUS,

BACTEROID, FUSOBAC., CLOSTR., MIXED 50%

ANAEROBIC INFECTION

MONOARTICULAR

INVOLVE THE HIP OR OTHER JOINT

SIGNS:

FOUL SMELLING SYNOVIAL FLUID

AIR WITHIN JOINT OR SURROUND TISSUE

SOURCES:

RETROPERITONEAL, PELVIC ABSCESS

MALIGNANCY, AFTER CHEMOTHERAPY

ABDOMEN AND GENITAL TRACT

PERIODONTAL ABSCESSES

SINUSITIS, DECUBITI

SEPTIC ARTHRITIS - DIAGNOSTIC APPROACH

CLINICAL SUSPICION

+EXTRA-ARTICULAR FOCUS OF INFECTION

ARTHROCENTESIS+SYNOV. FLUID ANALYSIS:

1. POSITIVE GRAM STAIN 50-75%
2. POSITIVE CULTURE 50-75%
3. WBC >50000 IN 50-70%, 2000-50000 IN 30-50%

WITH PMN >85%

4. GLUCOSE <50% OF THE SERUM GLUCOSE
5. LACTIC ACID IS INCREASED BUT N IN GR-
6. CRYSTALS LEAK OUT DURING INFECTION
BUT DON'T RULE OUT SEPTIC ARTHRITIS

SEPTIC ARTHRITS - DIAGNOSTIC APPROACH

FEVER - ABSENT OR LOW-GRADE 50%

LEUKOCYTOSIS 50%

ESR AND CRP - ELEVATED

BLOOD CULTURES - POSITIVE IN 50 %

TO CULTURE ALL ORIFICES, FLUIDS, FOCI

CHOCOLATE AGAR FOR GONOCOCCAL

SYNOVIAL BIOPSY FOR MYCOBAC., FUNGI.

X-RAY: TO RULE OUT OSTEOMYELITIS

FAT PAD DYSPLACEMENT BY EFFUSION

PERIARTICUL. OSTEOPOROSIS - 1 WEEK

JOINT SPACE LOSS, EROSIONS 7-14 DAYS

SEPTIC ARTHRITIS - X-RAY

GASE FORMATION - E.COLI OR ANAEROBES

SOFT TISSUE EXTENSION - BY US, CT, MRI

SCINTIGRAPHY (SCANOGRAMM)

Te, GI, INDIUM-LABEL LEUKOCYTES

Te - ICREASED BLOOD FLOW

GI, iNDIUM - IN SITES OF PROTEIN AND WBC

NO INFORMATIVE FOR PROSTHESIS INFECT:

ABNORMAL UPTAKE FOR 1 YR AFTER OPER

GI - LOW SENSITIVITY FOR PROSTHESIS

SEPTIC ARTHRITIS -TREATMENT

IMMEDIATE JOINT ASPIRATION

TO REMOVE AS MUCH FLUID AS POSSIBLE

TO SEND THE FLUID FOR INVESTIGATION

GR+ COCCI: CLOXACILLIN OR VANCOMYCIN

GR- COCCI: CEFTRIAXONE (ROCEFIN)

GR-BACIL: BETA-LACT.+GARRA OR ROCEFIN

GRAMM STAIN NEGATIVE:

- <AGE 2YR- COVER STAPH, STR, H. INFL, GR-
- AGE, IMMUNOCOMPR. -MRSA, GR-
- OTHER: PENICYLLINASE RESIST. BETA-LAC

SURGERY: HIP, SHOULDER, 5-7DAYS FAILURE

SEPTIC ARTHRITIS - TREATMENT

DURATION OF ANTIBIOTIC THERAPY:

PARENTERAL - FOR 2 WEEKS,

THAN ORAL - FOR 2-6 WEEKS

STREPT. AND H. INFLUENZA - FOR 2 WEEKS

STAPH. - FOR 3 WEEKS OR LONGER

ARTHROSCOPY

FORBIDDEN TO HOLD JOINT IN FLEXION

EARLY EXERCISES

TREATMENT DELAY MORE THAN 7 DAYS -

ONLY 25% COMPLETE RECOVERY

Clinical comparison of disseminated gonococcal infection (DGI) and nongonococcal bacterial arthritis

DGI Arthritis

Young, healthy

No preexisting joint disease
or intra-articular injections

Polyarthralgia polyarthritis

SF culture + <25%

Blood culture rarely positive

Rapid response to antibiotic

Outcome good in >95%

Nongonococcal Bacterial

Children, elderly

Prior arthritis, prosthetic
joint

Monoarthritis

Dermatitis, tenosynovitis

SF positive in 95%

Blood culture + 40-50%

Prolonged treatment

Outcome poor in 30-50%

Treatment of gonococcal arthritis or DGI

Ceftriaxone 1 gram per day IM or IV or

Ceftizoxyme 4 gram per day IV or

Erythromycin 2 gram per day IV

:Allergy to penicillin

Spectinomycin 2gram X 2 per day IM or

Ciprofloxacin 2 gram per day IV or

Erythromycin 2 gram per day IV

:Susceptibility to penicillin

Ampicillin 1 gram X 3 per day IV or

Augmentin 0.5 gram X 3 per day orally

Duration of treatment: 2 weeks

Major Clinical Features of Lyme Disease

Stage I – *Early*

Erythema Migrans

Flu-Like Syndrome

Malaise, Fever, Myalgia, Arthralgia

Headache, Stiff Neck

Major Clinical Features of Lyme Disease (Continued)

Stage II – *Early Disseminated*

Multiple or Recurrent Erythema Migrans

Borrelia Lymphocytoma

Migratory Arthralgia/Arthritis

Meningoencephalitis

Peripheral Neuropathy (Bell's Palsy)

Carditis (Conduction Defects)

Major Clinical Features of Lyme Disease (Continued)

Stage III – *Late*

Acrodermatitis Chronica Atrophicans

Intermittent/Chronic Oligoarthritis

Chronic Meningoencephalitis or Encephalitis

Sensorimotor Neuropathies

Lyme Disease: Typical Patterns of Joint Involvement

	Pattern	Incidence
Early	Migratory Arthralgia	20%
Midcourse	Intermittent Oligoarthritis	60%
Late	Chronic Oligoarthritis	10%



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Treatment of Lyme arthritis

**Doxycyclin 100 mg x 2 per day for 4 weeks
per os or**

**Ceftriaxone 2 gram per day for 2 weeks IM or
IV or**

**Moxypen+Probenicid 0.5gram each x 4 per
day- 4wks**

:Refractory arthritis (HLA DR4)

Prolonged maximal dose treatment

**Penicillin IV high dose(3mlnU X 6 per day for
2-4wk)**

Synovectomy

Musculoskeletal Syndromes Associated With HIV Infection

Arthralgia

Infectious Arthritis

- Opportunistic Infections

- Pyogenic Infections

Reiter's Syndrome

Psoriatic Arthritis

Myositis

Sjögren's Syndrome

Musculoskeletal Syndromes Associated With HIV Infection (Continued)

Undifferentiated Spondyloarthropathy

AIDS-Associated Arthritis

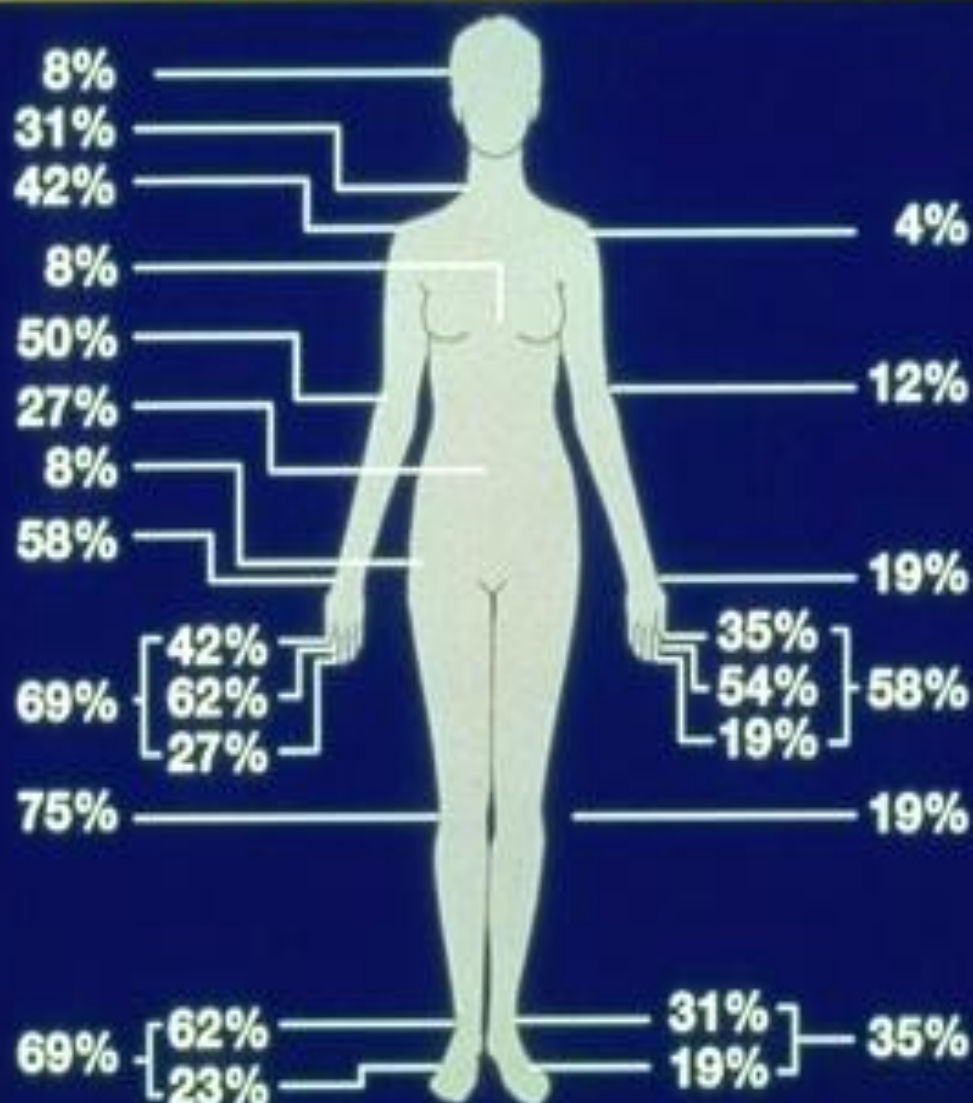
Painful Articular Syndrome

Avascular Necrosis of Bone

Parvovirus Infection in Adults

Pain

Swelling



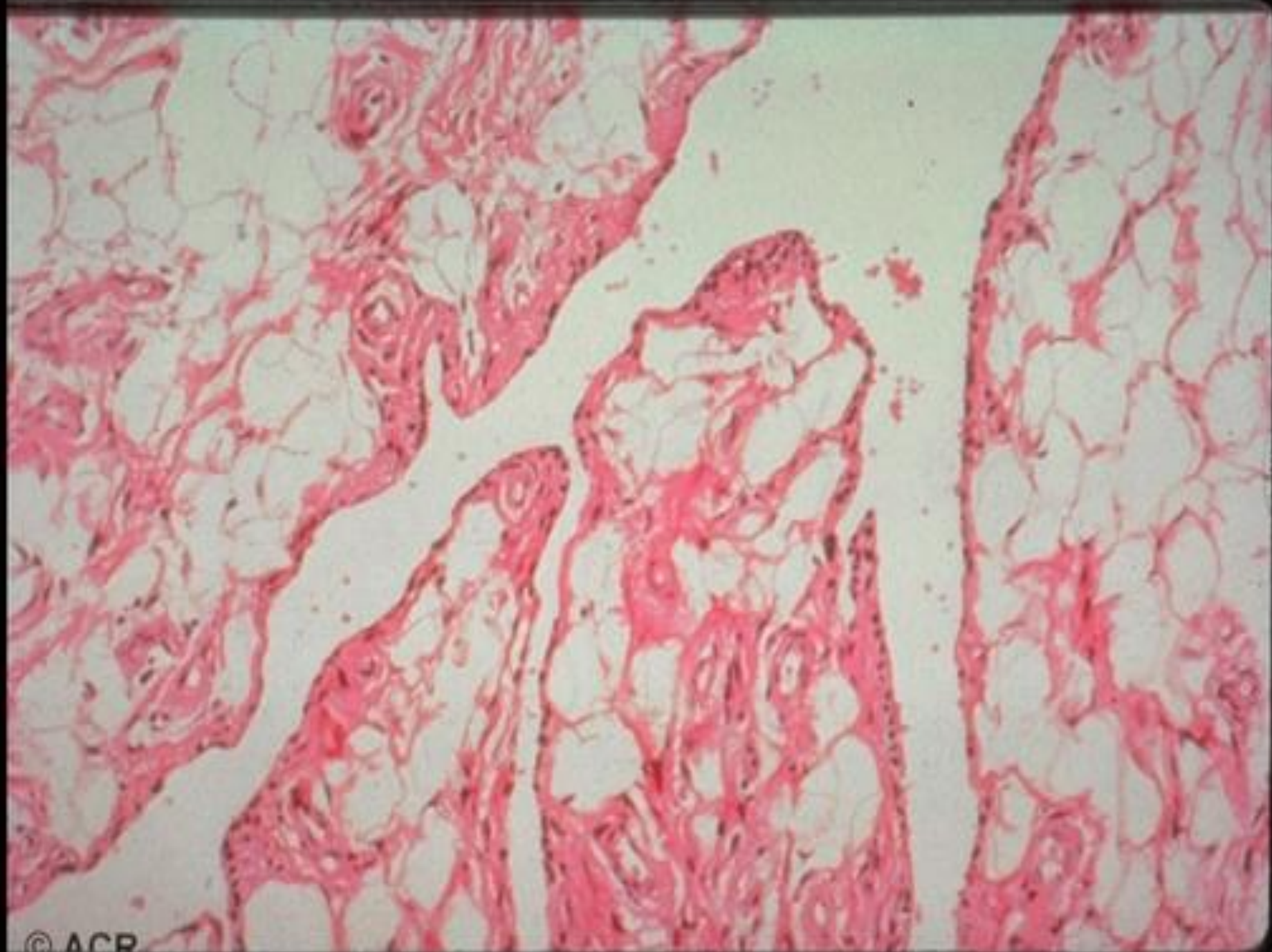


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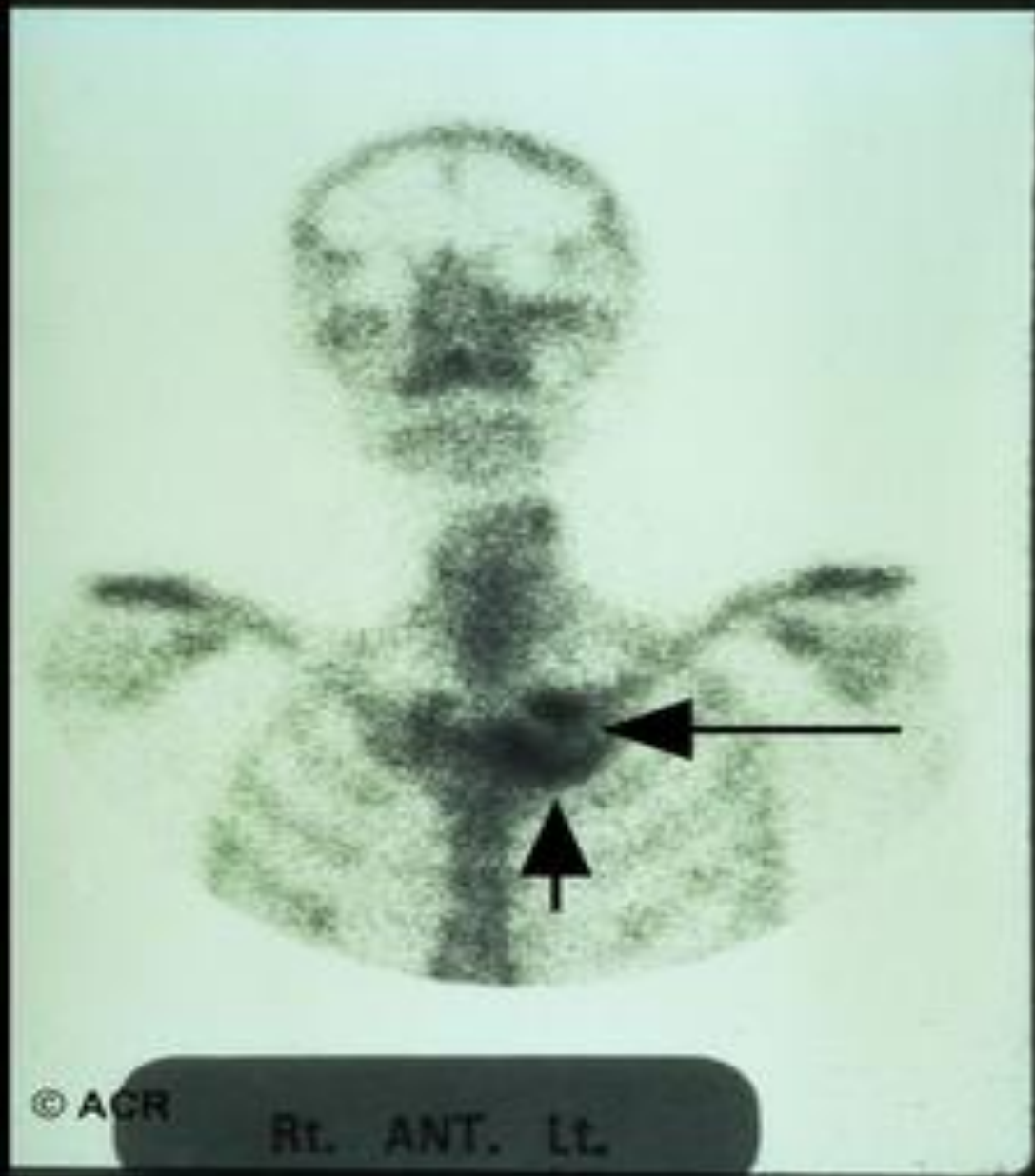






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