

SARCOIDOSIS

BY

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➤ Definition

A multi-system disease characterized by formation of granulomas in many organs of the body such as lungs , Skin , Eyes , and less often heart , CNS , kidneys and liver

➤ Pathophysiology

There is a problem in cell mediated immunity with reduction of CD8 lymphocytes with increased CD4/CD8 ratio leading to Granulomatous inflammation

The granuloma is formed of multi-nucleated giant cells without caseation (to differentiate it from TB)

➤ Prevalence & incidence

Prevalence: 10 - 20 patients in 100,000

Black patients (certain racial prevalence)

الاحصائيات الغربيه تتمثله فى الولايات المتحده الامريكه بتقول إن ال

كمان هو مشهور الحدوث فى المرضى ذوو البشره السوداء

كما أنه مشهور فى بعض الدول اللى فيها

طبعا زى دول افريقيا وكمان ال Afro-americans in USA

➤ What is the Clinical features?

Sarcoidosis might be ACUTE or CHRONIC or present as certain syndromes

I. ACUTE SARCOIDOSIS

◆ Called {Lofgren's Syndrome}

◆ Rare disease characterized by

- Fever, polyarthritis, cough
- Skin rash called " Erythema Nodosum "

وده طفح جلدي لونه احمر بيبقى على ال chins of tibia ،، وكمان مؤلم مع الضغط عليه

- CXR : shows bilateral hilar lymphadenopathy (BHL)

المرض ده نادر والغريب أنه مشهور فى المنطقه الاسكندنافيه الاوربيه عكس ال chronic sarcoid والمشهور فى السود !!

◆ Treatment

- Prognosis is often good
- The disease may resolve over 2 weeks
 - First line ttt (most patients improve with such ttt) ... >> NSAIDs ± colchicine
 - If refractory ...>> Oral steroids untill full improvement

II. CHRONIC SARCOIDOSIS

Most cases are chronic

✚ Pulmonary features:

90% of cases have pulmonary affection

The Classic Pulmonary Sarcoidosis is in the form of interstitial lung disease {ILD}

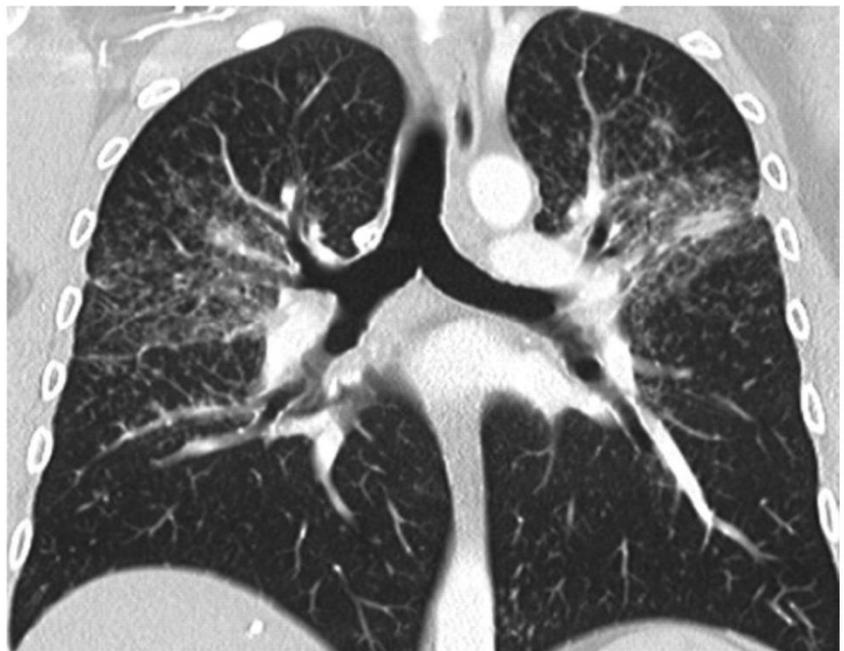
- ### ✚ Symptoms:
- Dry cough
 - Dyspnea (chronic)
 - Hemoptysis is rare in sarcoidosis

- ### ✚ Signs:
- Picture of upper lobe fibrosis

{Bilateral inspiratory crackles heard in upper lung zones which are not changed with cough}

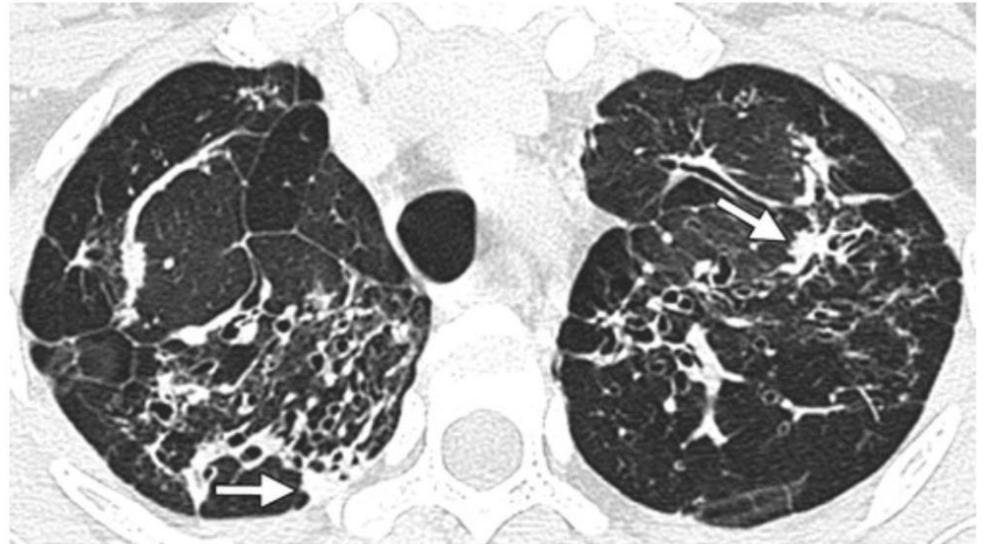
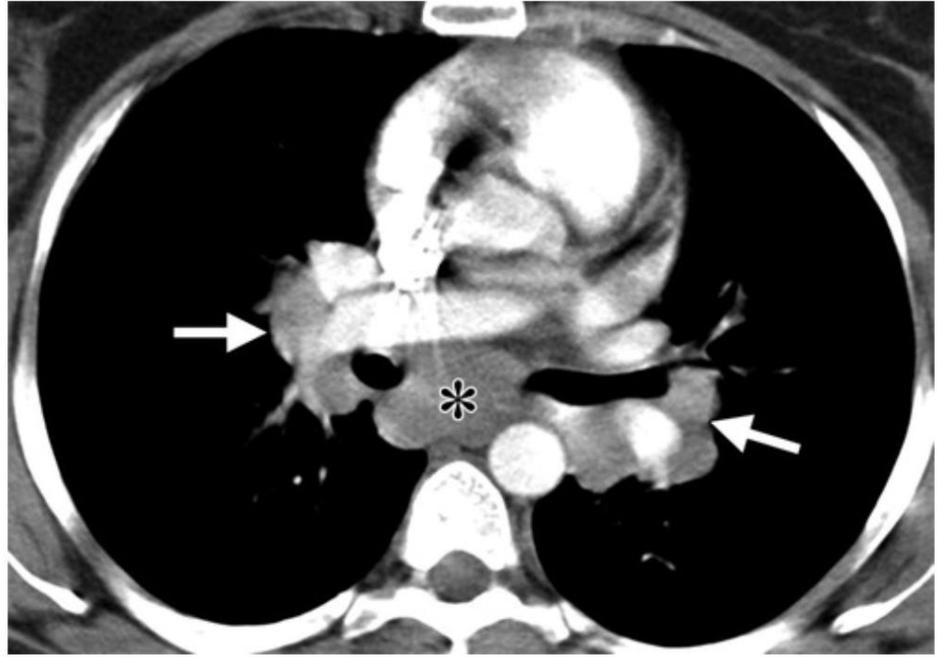
✚ Imaging

- **CXR:**
 - _May show
 - Bilateral hilar lymphadenopathy {BHL}
 - ± bilateral interstitial shadow



- **CT chest:**

May show variable appearances



➤ **Pulmonary Sarcoidosis is classified according to imaging into**

5 stages (*Siltzbach's classification System*)

Stage 0: normal

Stage 1: BHL

Stage 2: BHL + bilateral upper lobes interstitial/nodular shadow

Stage 3: bilateral interstitial upper lobes interstitial/nodular shadows

Stage 4: advanced fibrosis

STAGE 0	No abnormalities	5%–10%	
STAGE 1	Lymphadenopathy (fig. A)	50%	
STAGE 2	Lymphadenopathy + pulmonary infiltration (fig. B)	25%–30%	
STAGE 3	Pulmonary infiltration (fig. C)	10%–12%	
STAGE 4	Fibrosis	5% (up to 25% during the course of the disease)	

➤ Parenchymal lung affection (interstitial shows in imaging) in patients with Sarcoidosis needs 2 important investigations

- **Spirometry:** looking for Restrictive pattern with early low DLCO
- **Transbronchial biopsy:** Which reveals?
"Non Caseating Granuloma"

- Other rare lung **complications** in sarcoidosis
 - Chylothorax
 - Pneumothorax

- Other atypical features of sarcoidosis in imaging { rare }
 - ✓ Cysts
 - ✓ Effusion
 - ✓ Consolidations
 - ✓ Pleural thickening
 - ✓ Aspergilloma (fungal ball) on top of sarcoid lesions

N. B: PULMONARY HYPERTENSION may occur in some cases of Sarcoidosis

❖ EXTRA - PULMONARY SARCOIDOSIS



Sarcoidosis also affects other organs like

- ✓ Skin: 20 - 35%
- ✓ Eyes: 20 - 30%
- ✓ Liver: 30 - 40%
- ✓ Heart: 5 - 25%
- ✓ Nervous System: 1 - 5%
- ✓ Musculo-skeletal system (Joints) : 2 - 38%

Others

- ✓ Hypothalamo-pituitary Affection
- ✓ Kidney affection

I. Cutaneous Sarcoidosis

➤ Sarcoidosis commonly affects the SKIN with certain characteristic skin lesions such as

- ERYTHEMA NODOSUM
- LUPUS PERNIO
- Nummular eczema
- Erythema multiform
- Skin plaques
- Maculo-papular eruption
- subcutaneous nodules

Sarcoidosis



Sarcoid plaques



Sarcoid on knee



Sarcoid granulomas



Lupus pernio



Sarcoid papules



Sarcoid nodules

- The most important skin lesions with medical importance are

✚ Erythema Nodosum

Tender, 1-2cm bumps mostly on the shins; often accompanied by arthritis in the ankles, elbows, wrists and hands (as in Löfgren syndrome)

Erythema Nodosum

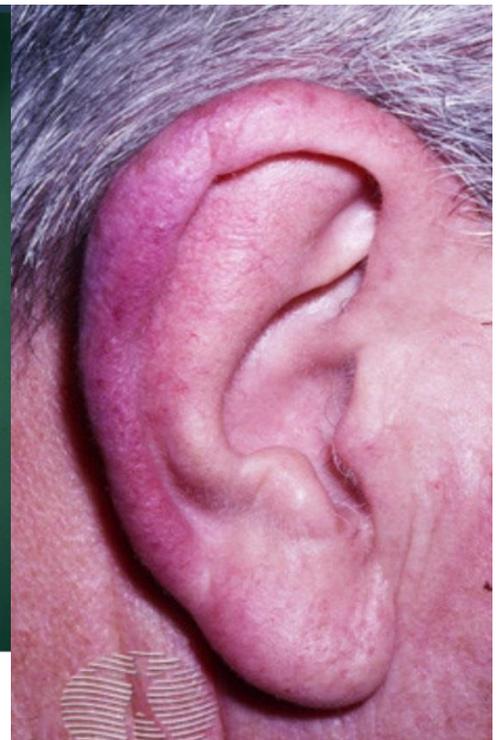


✚ LUPUS PERNIO

Large bluish-red and dusky purple infiltrated nodules and plaque-like lesions on nose, cheeks, ears, fingers and toes



Lupus pernio. Cutaneous sarcoidosis



ملحوظه هالامه :

1/3 of patients with Cutaneous Sarcoidosis come with only skin lesions without other organ affection

II. Eye Lesions in Sarcoidosis

✓ **Uveitis:** present with red eyes associated with blurring of vision {the most important & common eye lesion in sarcoidosis

لا بد من تشخيصه بواسطة طبيب العيون

III. Liver affection

The sarcoidosis causes Granulomatous inflammation of the liver

Most of cases with Hepatic Sarcoidosis are asymptomatic

Some of them have

- ✓ Hepatomegaly
- ✓ Splenomegaly
- ✓ Elevated liver enzymes

IV. Heart affection in Sarcoidosis

Heart affection carries bad outcome

Features:

- ✓ Heart block
- ✓ Picture of Restrictive Cardiomyopathy RCM

ملحوظة هامة :

يعتبر ال restrictive Cardiomyopathy أحد أهم العلامات المميزة لل sarcoidosis ،،

لأنه يعتبر أحد ال infiltrative disease ،،

حيث إن ال granulomas هي التي تتسبب في عملية ال Myocardial infiltration

ولما أطباء القلب ييجيلهم مريض ويشخصوه

Restrictive Cardiomyopathy by ECHO

بيجى فى بالهم ال sarcoidosis كسبب مهم لل RCM

RCM is caused by "OSIS" Diseases

- ✓ Sarcoidosis
- ✓ Amyloidosis
- ✓ Hemochromatosis
- ✓ Eosinophilic endomyocardial fibrosis

Dx: Transthoracic ECHO ± biopsy {if available}

V. Joint affection (10 - 35%)

- ✓ The most common presentation is "Acute Polyarthritis"
- ✓ Ankle joint is the most commonly affected joint
- ✓ Dactylitis may occur

VI. Kidney affection / Metabolic affection

- ✓ Nephrocalcinosis & stones formation
- ✓ Chronic tubulo-interstitial nephritis
- ✓ Hypercalciuria is common
- ✓ Hypercalcemia in 10% of cases (active formation of 1,25 (OH)₂ vit D)

VII. Neurological affection

- ✓ Polyneuropathy
- ✓ Mononeuritis multiplex
- ✓ Transverse myelitis

VIII. Pituitary Affection

- ✓ Central Diabetes insipidus DI (affection of posterior pituitary and hypothalamus)
- ✓ The patient come é polyuria خلى بالك
- ✓ Other pituitary affection is very rare

N.B: Nasal mucosal affection may occur

IX. General features

- ✓ Weight loss and Fever of Unknown origin FUO (not common)

❖ Special Syndromes in Sarcoidosis



I. Mikulicz syndrome:

- ☞ It is a chronic condition associated with sarcoidosis and also other disease like IgG4 related disease
- ☞ Characterized by the abnormal enlargement of parotids, lacrimal, salivary glands, tonsils and other glands in the soft tissue of the face and neck

II. Heerfordt's syndrome

- ☞ It is an acute presentation of sarcoidosis, which presents with fever, uveitis (red, painful Eyes), Bilateral swelling of the parotid and other salivary and lacrimal glands.
- ☞ Facial nerve palsy (LMNL) may be a feature, and other features of sarcoidosis may co-exist (e.g. skin lesions, pulmonary involvement).
- ☞ As it represents a form of neuro-sarcoidosis, other neurological features may be present (e.g. meningism, ophthalmoplegia and pupillary reflex dysfunction)

❖ Investigations



A) Labs

- ✓ Raised ESR.
- ✓ Hypergammaglobulinaemia (↑ Immunoglobulins) in 30-80%.
- ✓ Leukopenia in 5-10% of patients
- ✓ ACE levels
 - It is elevated in about 70% of patients with active sarcoidosis.
 - have a sensitivity of 60% and specificity of 70% and are therefore not reliable in the diagnosis of sarcoidosis although they may have a role in monitoring disease activity
 - عشان كمان يكون significant لازم يكون على ٢ - ٣ مرات ،، ولكن هو مش specific

B) Skin biopsy in skin lesions

☞ Prognosis

- ✓ Erythema nodosum is associated with a good prognosis in sarcoidosis.
- ✓ Sarcoidosis remits without treatment in approximately two-thirds of people
- ✓ The prognosis is excellent with less than 10% having persistent disease.

☞ Factors associated with a good prognosis

Include

- HLA B8
- Lofgren's syndrome (bilateral hilar lymphadenopathy, erythema nodosum, polyarthritis and fever)

☞ Factors associated with poor prognosis

- ◆ Insidious onset, symptoms > 6 months (chronic pulmonary involvement)
- ◆ Absence of erythema nodosum
- ◆ Extrapulmonary manifestations: e.g.
 - lupus pernio
 - Lupus pernio: is a chronic raised indurated (hardened) lesion of the skin, often Purplish in colour, and is associated with sarcoid.
- ◆ splenomegaly
- ◆ Cardiac involvement
- ◆ Cardiac sarcoidosis is rare but can manifest as a prolonged PR interval.
- ◆ Chronic hypercalcaemia
- ◆ Nasal mucosal involvement
- ◆ Neurosarcoidosis
- ◆ CXR: stage III-IV features
- ◆ black people (Afro-Caribbean or Afro-American race)
- ◆ Age of onset >40 years