# Sarcoidosis

Andrew D. Rosenberg

## Risk

- Risk varies; ≤1–80:100,000, with highest incidence in Sweden; in USA, occurs in 30/100,000.
- Presents in pts ages 20–40 y in USA.
- More common in African Americans than whites in USA.
- Females at greater risk than males.

## Perioperative Risks

- Severity depends on degree of airway, lung, cardiac, and CNS involvement.

## Worry About

- Airway granulomas distorting and obstructing anatomy risking obstruction with sedation and making intubation potentially difficult
- Degree of lung involvement and pulm fibrosis
- Cardiac involvement, heart block, arrhythmia, and CHF
- CNS involvement

## Overview

- Multisystem granulomatous disorder with widespread noncaseating epithelioid cell granulomas.
- Lung most frequently affected organ.
- Airway abnormality secondary to granulomas.
- Local organ distortion can result in symptoms.
- In mononuclear inflammatory cells, T-helper cells + mononuclear phagocytes lead to the formation of granulomas.

## Etiology

- Unknown disease due to exaggerated cellular immune response involving mononuclear phagocytes and T lymphocytes

## Usual Treatment

- Steroids: Oral prednisone (inhaled steroids not shown to be consistently effective)
- NSAIDs: Salicylates
- Chloroquine or hydroxychloroquine for mucocutaneous sarcoidosis
- If steroids ineffective, methotrexate or immunosuppressive agents

## Assessment Points

| System | Effect | Assessment by Hx | PE | Test |
|---|---|---|---|---|
| HEENT | Involvement of nares, polyps with distorted anatomy; larynx granulomas, epiglottis, arytenoid involvement | Dyspnea<br>Breathing difficulty | Nasal stuffiness, wheezing, hoarseness, stridor<br>Can see vocal cord palsy or paralysis | Laryngoscopy |
| CV | Heart block or arrhythmia<br>Cor pulmonale secondary to RV enlargement | Palpitations | Arrhythmia<br>Rales | ECG |
| RESP | Pulm granulomas, airway obstruction<br>Bilateral hilar lymphadenopathy (eggshell calcifications of hilar nodes); pulm fibrosis; interstitial disease | Dyspnea<br>Wheezing, cough | Dry rales<br>Wheezes | CXR<br>PFTs (decreased vital and diffusing capacities)<br>ABG<br>CT if airway obstruction considered an issue |
| GI | Liver involvement | | | Increased LFTs, increased alkaline phosphatase |
| ENDO | DI | Thirst | | |
| RENAL | Increased $Ca^{2+}$ resorption leading to nephrocalcinosis and other renal issues | | | BUN/Cr |
| CNS | Nerve involvement<br>DI | Space-occupying lesions<br>Seizures<br>Psychiatric examination | Focal nerve deficits | |

**Key References:** Sanders D, Rowland R, Howell T: Sarcoidosis and anaesthesia, *BJA Education* 16(5):173–177, 2015; Iannuzzi MC, Rybicki BA, Teirstein AS: Sarcoidosis, *N Engl J Med* 357(21):2153–2165, 2007.

## Perioperative Implications

### Preoperative Preparation

- Adequate steroid coverage.
- For pulm and airway, determine if airway obstruction exists and degree of pulm involvement. Evaluate for Hx of SOB and dyspnea. Obtain CXR and consider PFTs and preop ABG based on symptoms and Hx. If airway obstruction is suspected, obtain CT to better define issues.

### Airway

- Distortion or obstruction secondary to granulomas
- Hypoxia secondary to lung disease

### Monitoring

- Observe for heart block.
- Arrhythmia.

## Anticipated Problems/Concerns

- Airway problems secondary to distorted anatomy
- Pulm problems secondary to lung involvement

# Sarcoma

Onur Demirci

## Risk

- Malignant bone tumors. Incidence is 1:100,000; 3000 new cases/y in USA, with bimodal age distribution (first peak during adolescence, second peak in older adulthood).
- Soft tissue sarcomas: Incidence is 1:100,000 for ages <20 y and 7:100,000 for ages ≥20 y; 12,000 new cases/y in USA; mean age at diagnosis is 58 y.
- Prevalence equal in both genders and all races except Ewing sarcoma (high Caucasian predominance).
- Overall: 15% of cancers in children age <20 y.

## Perioperative Risks

- Morbidity and mortality related to surgical procedure.
- Metastatic vital organ involvement, especially lungs and liver.
- Mass effect, direct compression of organs and vascular structures.

## Worry About

- Adriamycin-induced cardiotoxicity (global LV hypokinesis)
- Mitomycin-induced acute pulm toxicity, pulm fibrosis, ARDS with increased $FiO_2$
- Immunosuppression, hemorrhagic cystitis, renal failure induced by chemotherapeutic agents

## Overview

- Heterogeneous group of malignant tumors of connective tissue derived from the embryonic mesoderm.
- Two most common sarcoma forms: Malignant bone tumors and soft tissue sarcomas.
- Malignant bone tumors such as osteosarcomas and Ewing sarcomas can be found throughout bones and cartilage.
- Soft tissue sarcomas often arise from muscles, joints, fat, nerves, deep skin tissues, and blood vessels.
- Can spread aggressively by local invasion and early hematogenous spread, especially to lungs.

## Etiology

- Genetic factors, high-dose radiation, carcinogens (dibenzanthracene, methylcholanthrene), and some viral infections (Moloney sarcoma virus, human herpes virus 8) may predispose pts to sarcoma.
- von Recklinghausen's disease: 10–12% develop neurofibrosarcomas.
- Li-Fraumeni syndrome: Strong association with sarcomas.
- Retinoblastoma survivors have much higher incidence of osteosarcomas.
- Paget's disease: 0.9% develop osteosarcoma.
- Kaposi sarcoma strongly associated with human herpes virus 8 in immunocompromised pts.

## Usual Treatment

- Neoadjuvant chemotherapy with antineoplastic agents
- Wide surgical resection
- Radiation