ERDHEIM-CHESTER DISEASE (ECD)

A rare histiocytic neoplasm

ECD is a rare disorder with variable presentations, delayed diagnosis, and the potential for poor outcomes. A multidisciplinary approach, mainly ophthalmology and hematology, is necessary for its management.

DEFINITION

- A rare histiocytic disorder with infiltrates throughout the body's organs and tissues
- A multi-system disease affecting virtually any combination of organ systems, including ophthalmic/periorbital, pulmonary, cardiovascular, renal, musculoskeletal, dermatologic, hypothalamic/pituitary, and central nervous system
- A rare disease with a critical need for prompt diagnosis to improve patient health outcomes
- Now classified as a blood cancer, diagnosed through clinical and radiologic findings, biopsy, and molecular (e.g., BRAF V600E and other mutation) testing

PROTEAN CLINICAL PRESENTATIONS

- Depends on organs involved
- Generalized symptoms of bone pain, fevers, night sweats, weight loss, fatigue, and/or weakness are often present and can be severe
- Findings may include diabetes insipidus, ataxia, dysarthria, diplopia, proptosis, dyspnea on exertion, xanthelasma, and renal failure
- Typical onset between 40 and 70 years of age, although documented cases in all age groups
- Slight preponderance of males

TYPICAL RADIOLOGY FINDINGS

- Bilateral cortical sclerosis of the long bones involving the diametaphyseal regions
- Strong bilateral long bone uptake of radioactive tracer on 99mTc bone scintigraphs or PET scans
- Encasement of organs - "hairy kidney," "coated aorta," retroperitoneal fibrosis, right atrial mass, pericardial thickening or effusion

PATHOLOGY FINDINGS

- Infiltration by foamy or lipid-laden, epithelioid or spindled histiocytes, with associated fibrosis and/or inflammatory background; foam cell finding not always present
- Touton giant cells may be present
- Immunohistochemistry: ECD histiocytes are XG family phenotype:

CD68+	Factor 13a+
Fascin+	CD163+
S-100+/-	CD1a-

- *BRAF*V600E mutations in >50% of patients
- Other MAPK pathway alterations (e.g. MAP2K1, KRAS), including kinase fusions, in nearly all patients without *BRAF*V600E mutation

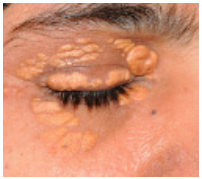
ERDHEIM-CHESTER DISEASE GLOBAL ALLIANCE

A 501c3 organization | Supporting those affected by ECD

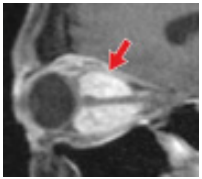
KEY POINTS FOR OPHTHALMOLOGISTS:

1. Ophthalmologic involvement occurs in 25% –60% of ECD cases, and can involve many different areas in and around the eye
2. Ophthalmic manifestations include palpebral xanthelasmas, orbital infiltration, epibulbar or corneal involvement, anterior uveitis or vitritis, choroidal infiltration (with secondary recurrent serous retinal detachment, retinal drusen–like deposits and retinal pigment epithelial changes), and optic nerve infiltration
3. Clinical findings include chemosis, proptosis, ophthalmoplegia, cells in the anterior chamber or vitreous, infiltrative yellow lesions in the eyelid, epibulbar or choroid and disc edema
4. 40% of patients have visual symptoms which include: blurry vision, diplopia, pain, redness, periorbital swelling
5. Involvement of the facial bones and maxillary sinuses has also been observed; the combination of xanthelasma and other infiltrative ocular lesions may suggest the diagnosis of ECD
6. Treatment of ECD has the potential to address ocular lesions and to maintain, improve or protect vision

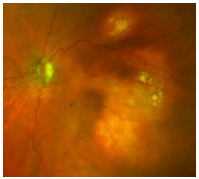
Xanthelasma



Orbital Mass



Choroid Lesion



Reference; Francis JH, Reiner AS, Canestraro J, Rampal RK, Abramson DH, Diamond EL. Ocular findings in patients with histiocytosis and association with clinical and molecular features. Br J Ophthalmol. 2024 May 24.

Want to Learn More?

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