

## An unusual case of Extranodal Rosai-Dorfman Disease manifesting as a bilateral Epibulbar mass.

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### Abstract:

**Purpose:** To report an unusual presentation of a 24-year-old man with bilateral epibulbar mass, whose presentation was confirmed histopathologically as Rosai Dorfman disease. **Method:** We studied a retrospective and interventional case report. **Results:** A 24-year-old man presented with a mass over both eyes, gradually and, progressively increasing over one year. Visual acuity and intraocular pressures were normal in both eyes. Examination revealed bilateral non tender mobile soft in consistency epibulbar mass of 3.0 x 2.0 x 0.5 cm with no overlying skin involvement. Excisional biopsy was performed. Histopathologic evaluation revealed emperipolesis, with positive CD68 (cluster of differentiation, acts as a marker for various cells of macrophage lineage), S100 (calcium binding protein believed to be glial in origin). These findings were consistent with extra nodal Rosai Dorfman disease At 6 months follow-up, there were no signs of recurrence. **Conclusions:** This case of Rosai Dorfman disease is rare because of the presence of bilateral epibulbar mass with no systemic involvement. It tends to be unilateral and is typically benign in nature. Excisional biopsy is often done for diagnosis and treatment. In case of unilateral Rosai Dorfman disease recurrence after biopsy is rare, but common with bilateral disease.

**Keywords:** Epibulbar mass, Extranodal site, Rosai-Dorfman disease, Sinus histiocytosis with massive lymphadenopathy.

### Introduction:

Rosai Dorfman disease (RDD) predominantly occurs in young adults with a mean age at presentation of 21 years. There may be a slight male predominance. Sinus histiocytosis with massive lymphadenopathy (Rosai Dorfman disease) is a benign, idiopathic, self-limiting lymphoproliferative disease described by Rosai Dorfman in 1969. Extranodal manifestations represent about 43 percent of cases. The disease is classically accompanied by fever, malaise, leukocytosis and increased erythrocyte sedimentation rate and hypergammaglobulinemia.

Diagnosis is usually aided by MRI findings and confirmed by histopathology, pathologic findings were<sup>1</sup>:



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1. Emperipolesis: histiocytes with engulfed lymphocytes (most common), plasma cells and erythrocytes;

2. Marked fibrosis of the lymph node capsule with lymphocyte and plasma cell infiltration;
3. Dilation of subcapsular and medullary septate;
4. Increased intrasinus histiocytosis with little atypia and few mitoses.

The classical findings of RDD include emperipolesis and histiocytes staining positive for CD68 (cluster of differentiation, acts as a marker for various cells of macrophage lineage), S100 (calcium binding protein believed to be glial in origin), and negative for CD1a (cluster of differentiation 1a receptors is positive for Langerhans cells in neoplastic and inflammatory disorders and is negative for dendritic cells in most cutaneous B cell lymphomas, dendritic cell neurofibroma, Erdheim-Chester disease, follicular dendritic cell tumor, histiocytic lymphoma / sarcoma, histiocytoma, interdigitating dendritic cell sarcoma, juvenile xanthogranuloma, sinus histiocytosis with massive lymphadenopathy). The disease usually follows a benign and self-limiting course with treatment largely targeted at controlling local manifestations (surgical intervention). In this case it is excision biopsy.

### Case Report:

A 24-year-old brown indo Aryan male presented with painless swellings over both eyes in epibulbar region progressively increasing over one year. He denied any history of trauma, previous eye surgeries, intravenous drug abuse, fevers, night sweats, or unintended weight loss. His past medical history was negative for diabetes, hypertension, cancer, and lymphoproliferative diseases. His binocular visual acuity is 6/6 unaided on Snellen chart and on examination, non-tender bilateral salmon colored epibulbar masses were visible. The anterior segment of both the eyes was normal. Pupils were round and equally reactive, with no relative afferent pupillary defect. On performing cover test patient was orthotropic with full eye movements and digitally the intraocular pressure seemed normal and confrontational fields were full in both eyes.

**Image 1 Patient's condition (Pre operative)**



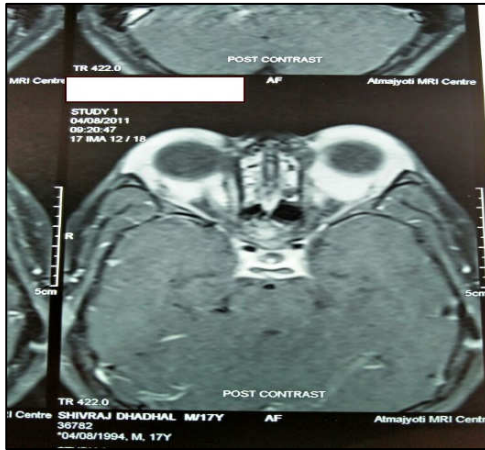
Physical examination showed only bilateral, non-tender, epibulbar mass about 2-cm in width, completely mobile with no skin involvement with no adjacent lymphadenopathy.

Patient was dilated with tropicamide (0.8% w/v) and phenylephrine (5% w/v) and fundus was found to be normal in both eyes. The complete blood count, liver function test, renal function test and erythrocyte sedimentation rate were normal.

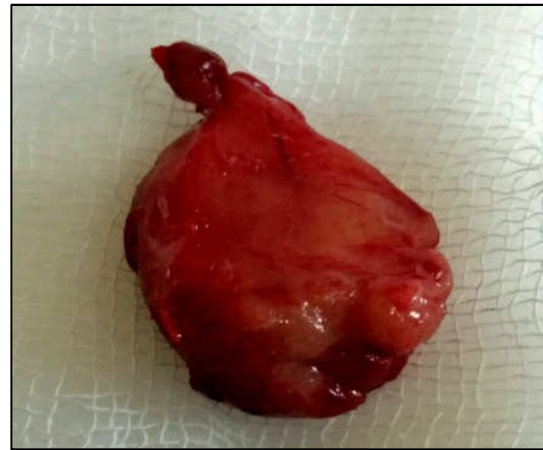
Patient was subjected to ultrasonography orbit which was inconclusive and then

referred for magnetic resonance imaging of orbits with brain without contrast which showed bilateral multilobulated enhancing lesions in extraconal and intraconal compartments with no bony erosion or intracranial extension.

**Image 2 MRI showing extraconal lymph node enlargement with no any extension.**



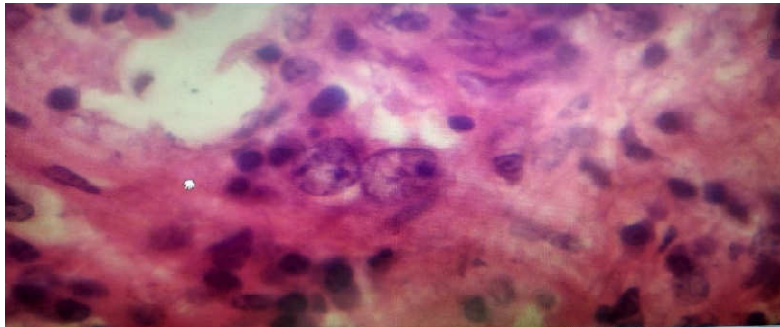
**Image 3 Excised salmon colored mass**



The epibulbar mass was biopsied via external approach and was preserved in formalin and then sent for histopathological diagnosis.

Histology showed prominent fibrosclerotic tissue with foamy vacuoles and foamy histiocytes, 25% polytypic plasma cells, multiple small benign mantle cell nodules, and emperipolesis with hematoxylin and eosin stain. The pathologic features and immunostains were consistent with extranodal RDD rather than with systemic lymphoma.

**Image 4 Histopathologic section of mass showing Emperipolosis (40X)**



The patient underwent unilateral surgical debulking of the epibulbar mass under peribulbar anaesthesia using 4% lignocaine and 0.5% bupivacaine. After aseptic measures, direct lid incision over the mass was placed, blunt dissection was done around it, adhesions removed, bleeders cauterized with bipolar cautery and the mass removed in toto and closure was done with muscle sutured with 6-0 vicryl monofilament and skin with 6-0 silk both in interrupted fashion. The histopathology results matched prior results. On postoperative day 1, his uncorrected visual acuity was 6/6 with mild upper lid blackening and was advised ciprofloxacin eye ointment over suture line thrice a day with systemic broad spectrum antibiotic thrice a day, tab ibuprofen (400) thrice a day, tab multivitamin twice a day, tab pantoprazole (40) once a day. Same procedure was repeated for the other eye. Patient was put on regular 1 week follow up for 1 month and then every 6 months followup.

**Image 5 Patient's condition (Post-operative)****Discussion:**

The total number of cases reported yet is less than 1000 worldwide and in India so far 10 cases are reported. Ocular manifestations occur in 11.5% of RDD cases, often involving orbital soft tissues and the eyelids. Infiltrations of the conjunctiva, sub conjunctiva, lacrimal tract, cornea and uveal tract, as well as of the optic nerve, have been reported.

The epidemiology of extranodal RDD manifesting as epibulbar masses has evolved over the years. Currently, there are 20 reported cases worldwide.<sup>2-18</sup> Epibulbar mass has been described as bilateral.<sup>2,3</sup>

Fourteen out of 20 case reports (70%) show unilateral involvement<sup>2,3,4,6,11,13,14,16,18</sup> and 3 out of 20 case reports show the presence of lymphadenopathy.<sup>2,4,5</sup>

The mean age at presentation is 30 years (standard deviation 21), which is slightly lower than the 35 years given in a previous report. According to gender, males are more likely to be affected, (13 out of 20 cases (65%)). There is an equal distribution between white and black race, each with 7 out of 20 case reports (35%).

Our case is unique because of rare bilateral epibulbar mass and in the absence of lymphadenopathy, lymphocytosis, and fever. Fernandes et al<sup>6</sup> examined 9 extranodal RDD cases and concluded that a lack of lymphadenopathy is a characteristic for extranodal RDD. Our case report findings are consistent with the findings of Fernandes et al. Three cases in the literature report patients with epibulbar masses and subcutaneous nodules localized on the arms, legs, or anterior chest wall.<sup>7,8,9</sup> Our findings demonstrate only bilateral epibulbar masses with no subcutaneous nodules anywhere on the body.

The classical findings of RDD include emperipolesis and histiocytes staining positive for S100 and CD68, and negative for CD1a. There is no standard protocol for the treatment of ocular RDD because of its rarity and the chance of spontaneous regression.<sup>1,10</sup> Excisional biopsy is often done for diagnosis and treatment<sup>6</sup>, and there is usually no recurrence after an excisional biopsy. Recurrence after excisional biopsy of bilateral epibulbar masses may be due to existing uveitis, thus requiring additional surgical excision.

Consistent with the literature, our patient does not have recurrence of his bilateral epibulbar masses after excisional biopsy. Interestingly, our literature review shows that recurrence after excisional biopsies of bilateral epibulbar masses is common, appearing in 2 out of 7 cases (29%).<sup>5,11</sup> This pattern has not been reported before, and recurrence may be due to coexisting uveitis in these 2 cases.

Extranodal RDD with epibulbar masses are exceedingly rare. Any epibulbar mass should raise concern for systemic lymphoma and RDD and the MRI must be the routine procedure and should be confirmed by histopathology. The clinical course of extranodal RDD is typically benign. There is no standard protocol for treatment; however, excisional biopsy is commonly done for diagnosis and treatment.

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