Orbital Inflammation in Pregnant Women

FREDERICK A. JAKOBIEC, ZEBA A. SYED, ANNA M. STAGNER, GERALD J. HARRIS, JACK ROOTMAN, MICHAEL K. YOON, AND ILSE MOMBAERTS

• OBJECTIVE: To analyze overlaps between pregnancy and orbital inflammation (OI).
• DESIGN: Retrospective observational case series.
• METHODS: Eight new cases from 1997 to 2015 and 2 previously published cases were identified for inclusion in this investigation to provide the fullest clinical picture. Medical records, imaging studies, and the results of biopsies were reviewed.
• RESULTS: Three categories of association were discovered: (1) OI arising for the first time during pregnancy (5 cases); (2) OI arising within 3 months of delivery (2 cases); and (3) previously diagnosed OI reactivated or exacerbated by pregnancy (3 cases). One patient had a preexistent systemic autoimmune disease and another's was later diagnosed. One patient had attacks during sequential pregnancies. Findings included eyelid swelling and erythema, conjunctival chemosis, pain on eye movement, minimal diplopia, the usual absence of proptosis, and general preservation of visual acuity. Imaging studies disclosed extraocular muscle swelling (8 cases), most frequently of a single lateral rectus muscle. There were 2 cases of dacryoadenitis; 1 of these and an additional case displayed inflammation of the retrobulbar fat. Corticosteroids effected resolution of most symptoms. Singleton births were normal with the exceptions of an intrauterine fetal demise owing to acrania and a molar pregnancy.
• CONCLUSION: OI usually affects a single rectus muscle (typically the lateral) and, less often, the lacrimal gland and is often mild when it arises during or after pregnancy. Independent systemic autoimmune disease is an uncommon feature. Corticosteroids were efficacious except in 1 case with severe orbital scarring. No definitive causal relationships between pregnancy and OI could be established based on the clinical data. (Am J Ophthalmol 2016;166:91–102. © 2016 Elsevier Inc. All rights reserved.)

AJO.com Supplemental Material available at AJO.com.
Accepted for publication Mar 23, 2016.

From the Department of Ophthalmology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, Massachusetts (F.A.J., Z.A.S., A.M.S., M.K.Y.); David G. Cogan Laboratory of Ophthalmic Pathology, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts (F.A.J., A.M.S.); Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, Wisconsin (G.J.H.); Department of Ophthalmology & Visual Sciences, University of British Columbia, Vancouver, Canada (J.R.); and Department of Ophthalmology, University Hospitals Leuven, Leuven, Belgium (I.M.).

Inquiries to Frederick A. Jakobiec, Massachusetts Eye and Ear Infirmary, 243 Charles St – Suite 328, Boston, MA 02114; e-mail: Fred_Jakobiec@meei.harvard.edu

IDIOPATHIC, NONINFECTIOUS ORBITAL INFLAMMATIONS are by definition localized disorders.[1,2] A significant number of orbital inflammations, however, may be associated with some underlying systemic condition or remote organ dysfunction. Examples of this phenomenon are granulomatosis with polyangiitis (previously known as Wegener granulomatosis),[3] polyarteritis nodosa,[4–6] multifocal fibrosclerosis (now sometimes categorized as IgG4-related disease),[7,8] systemic lupus erythematosus,[9–17] celiac disease,[18,19] regional enteritis (Crohn disease),[20–24] and ulcerative colitis.[25,26] Despite its obvious frequency and accompanying pancorporeal metabolic, hormonal, and immunologic perturbations, pregnancy is not known to most ophthalmologists as being linked to episodes of orbital inflammation (OI). We summarize the findings in 8 new cases of this phenomenon and compare them with 2 others[27,28] that have been previously published.

METHODS

THIS RETROSPECTIVE, OBSERVATIONAL STUDY WAS CONducted in compliance with the rules of the Institutional Review Board at Massachusetts Eye and Ear. The office clinical records and eye pathology files were reviewed for cases of pregnant women diagnosed with orbital pseudotumor, idiopathic orbital inflammation, orbital inflammation, and nonspecific orbital inflammation at 4 tertiary care centers. Inquiries were also made of a group of 8 experienced orbital surgeons and no additional cases were identified. A total of 8 cases were assembled from the period 1997–2015 from the practices of the coauthors of this paper. The new cases were included in this series if the attacks occurred either during pregnancy or within 3 months of delivery.

The medical records were summarized (Table) and clinical photographs and imaging studies (computed tomography and magnetic resonance imaging scans, ultrasonograms) were reviewed. Four cases (Table, Cases 5, 7, 8, 9) are included that were part of a report of 16 cases of orbital myositis in which the patients were mentioned in passing as having been pregnant, but no information about the pregnancies or the ocular examinations was provided.[29] The records and microscopic slides of the patients were retrieved and reevaluated for the purposes of the current study. Also listed in the Table are the data extracted from 2 detailed earlier reports[27,28] in the literature (Cases 3 and 6). Microscopic sections of 3 biopsies were available for

0002-9394/$36.00
http://dx.doi.org/10.1016/j.ajo.2016.03.029

TABLE. Summary of 8 New Cases and 2 Reported Cases of Orbital Inflammation Associated With Pregnancy

Case Number	Age	Presenting Complaint/ Severity	Orbital Site Initially Involved (Confirmed by Imaging)	Orbital Inflammation Initially During Pregnancy	Orbital Inflammation Initially After Pregnancy	Orbital Inflammatory Recurrences During or After Subsequent Pregnancies	Orbital Inflammatory Recurrences Not Associated With Pregnancy	Systemic Disease	Biopsy and Results	Follow-up	Treatment and Outcome
I. New onset during pregnancy											
Case 1	40	Left superolateral upper eyelid pain and swelling increasing over 3 weeks; normal vision, pupils, and motility; no proptosis	Bilateral dacryoadenitis (CT)	28 weeks' gestation; intrauterine fetal demise owing to acraina, anencephaly, and a complex heart malformation	Not applicable	Not applicable	Not applicable	Diabetes mellitus type 2	Light lymphoplasmacytic infiltrate and early fibrosis of lacrimal gland	9 months	Complete resolution of pain and swelling with oral corticosteroids (60 mg/d with 6-wk taper)
Case 2	29	24 hours of right eye redness; pain worse with horizontal eye movement; VA 20/30; motility full; pain with adduction; no proptosis; mild upper eyelid edema; mild segmental conjunctival chemosis medially	Right medial rectus myositis without tendon involvement (CT)	28 weeks pregnant	Not applicable	Not applicable	Not applicable	None	Not done	16 years	Complete resolution without treatment in 1 week (occasional acetaminophen)
Case 3[25]	30	Painful diplopia for 3 days; VA 20/20; 30 prism diopters of left esodeviation; abduction deficit; normal pupils; otherwise unremarkable examination	Left lateral rectus myositis without tendon involvement (MRI)	38 weeks pregnant	Not applicable	Not applicable	Not applicable	None	Not done	6 months	Complete resolution of pain and abduction deficit with oral corticosteroids (1.0 mg/kg/d with taper over 6 wk)

Continued on next page