European Journal of Ophthalmology / Vol. 16 no. 2, 2006 / pp. 343-345

SHORT COMMUNICATION

Endogenous endophthalmitis by *Propionibacterium acnes* associated with leflunomide and adalimumab therapy

J.A. MONTERO[1], J.M. RUIZ-MORENO[2], A.E. RODRÍGUEZ[3], C. FERRER[3], E. SANCHIS[4], J.L. ALIO[2]

[1]VISSUM, Retina Unit, Instituto Oftalmológico de Alicante, Alicante
[2]Department of Ophthalmology, Miguel Hernandez University, Alicante
[3]VISSUM, Instituto Oftalmológico de Alicante, Alicante
[4]Allergy and Clinical Immunology Unit, Hospital Pio del Rio Hortega, Valladolid - Spain

PURPOSE. *To report a case of unusual endogenous endophthalmitis associated with the use of leflunomide and adalimumab.*
METHODS. *A 48-year-old woman on treatment with leflunomide and adalimumab for rheumatoid arthritis developed an endogenous endophthalmitis caused by* Propionibacterium acnes*. Diagnosis was confirmed by polymerase chain reaction and positive cultures. The patient underwent surgical treatment and intravitreal vancomycin, but the eye developed retinal fibrosis and untreatable retinal detachment.*
RESULTS. *This report of endogenous endophthalmitis associated with the use of anti-tumor necrosis factor alpha (anti-TNF-α) drugs is consistent with those in the literature.* P. acnes *may induce pathologic reactions in compromised patients and cause endophthalmitis, but only after ocular surgery or in intravenous drug users. The Naranjo probability scale indicated a probable relationship between the drugs and the infection.*
CONCLUSIONS. *Awareness of atypical infectious conditions in patients on anti-TNF-α drugs is critical for early diagnosis and good outcome. (Eur J Ophthalmol 2006; 16: 343-5)*

KEY WORDS. *Anti-TNF-α, Endogenous endophthalmitis,* Propionibacterium acnes

Accepted: October 31, 2005

INTRODUCTION

The recent proliferation of anti-tumor necrosis factor alpha (TNF) drugs to treat rheumatoid, psoriasis, inflammatory bowel disease, and uveitis is leading to a growing number of associated local and systemic infections probably derived from the decreased cellular immunity caused by these drugs.

Case report

A 48-year-old woman on treatment for her rheumatoid arthritis (RA) for 18 months with leflunomide and prednisone, and in the last 12 months with adalimumab, attended our center because of decrease in visual acuity in her left eye in the last 6 weeks. She had had one episode of anterior uveitis in the same eye 4 months earlier, which resolved after being treated with topical steroids.

She had mild ocular and forehead discomfort, with conjunctival and perikeratic injection. Corrected visual acuity (VA) was 20/20 in her right eye (RE) and 20/100 in her left eye (LE). Funduscopic examination showed mild vitreous opacity and inferior snowbanking. She was treated with topical steroids resulting in further decrease of VA in her LE to 20/200 with an increase in anterior chamber and vitreous turbidity. Triamcinolone 40 mg was injected subconjunctival-

© Wichtig Editore, 2006
1120-6721/343-03$15.00/0

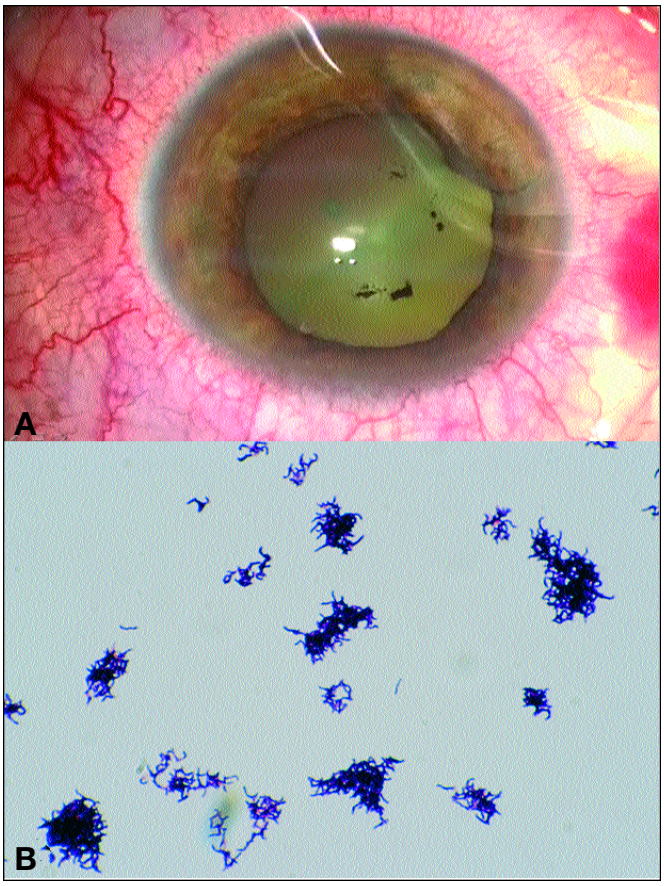

Fig. 1 - (A) *Vitreous opacity that prevents visualization of retina prior to vitrectomy.* **(B)** Propionibacterium acnes *cultured from the vitreous specimen, stained by methylene blue (x1000).*

ly and the same topical and systemic treatment was continued.

One month later, VA had decreased to counting fingers at 50 cm and the retina could not be observed due to vitreous opacity (Fig. 1A). An anterior chamber tap was performed for bacterial DNA polymerase chain reaction (PCR) and Gram stain. PCR disclosed the presence of bacterial DNA, and Gram stain showed the presence of Gram-positive cocci. A three-port vitrectomy was performed and undiluted specimens were obtained under air infusion for PCR, culture, and stain. *Propionibacterium acnes* was demonstrated by PCR and culture (Fig. 1B). When the patient was asked about previous intravenous drug treatments, catheters, or skin infections, she denied having any of them. She only admitted having received intradermal injections of adalimumab, and occasional venous taps for blood analysis.

DISCUSSION

TNF-α is a potent activator of neutrophils, mediating adherence, chemotaxis, degranulation, and the respiratory burst. It is also known to augment the capacity of monocytes to produce inflammatory mediators (1).

Anti-TNF-α drugs such as adalimumab, etanercept, leflunomide, and infliximab are presently being used to treat RA, inflammatory bowel disease, and immune uveitis, and the number of articles reporting its usefulness in the control of immune inflammatory diseases is on the rise (2). However, the risk of opportunistic infections is also increasing (3).

Endogenous endophthalmitis results from the introduction of organisms into the posterior segment of the eye as a result of hematogenous spread from a remote primary site of infection. Populations at greatest risk include immunocompromised patients, patients on immunosuppressive therapy, and intravenous drug users. Lack of suspicion may delay diagnosis, leading to poor visual outcome.

We have only found one reference to endogenous endophthalmitis by *P. acnes* in MEDLINE, which appeared in an acquired immunodeficiency syndrome–infected intravenous drug user (4). *P. acnes* causes low grade inflammation with initial good response to topical steroids, building up subsequently. It is usually associated with surgical procedures and is often misdiagnosed until the pattern of recurrence leads to suspicion of the infectious origin. The access of *P. acnes* in this case is unknown. It might have happened during one of the routine venous taps, and anti-TNF-α therapy reduced the immune system response to the infection, allowing the germ to reach the choroid and gain access to the vitreous, where it gradually caused the painless vitreous opacification and visual loss.

The authors have no proprietary interest in any of the drugs or devices described in this article.

Reprint requests to:
Javier A. Montero, MD
C/García Morato 35
9 Izda
47006 Valladolid, Spain
msm02va@wanadoo.es

REFERENCES

1. Borish L, Rosenwasser LJ. Cytokines in allergic inflammation. In: Adkinson NF Jr, Yunginger JW, Buse WW, Bochner BS, Holgate ST, Simons FER, eds. Middleton's Allergy. Principles and Practice. 6th ed. Philadelphia: Mosby, 2003; 137.
2. Ruderman EM. Current and future pharmaceutical therapy for rheumatoid arthritis. Curr Pharm Des 2005; 11: 671-84.
3. Giles JT, Bathon JM. Serious infections associated with anticytokine therapies in the rheumatic diseases. J Intens Care Med 2004; 19: 320-34.
4. de la Fuente J, Fernandez-Catalina P, Sopena B, Cadarso L. Endogenous endophthalmitis caused by *Propionibacterium acnes*. Arch Ophthalmol 1993; 111: 1468.