Letter

1. **Chronic Panuveitis and Scleritis in a Patient with Cryptogenic Organizing Pneumonia**

2. running title: cryptogenic organizing pneumonia and uveitis
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6. Title page: 1 page, Keywords: 1 page, Text: 3 pages, Reference: 4, Tables: 1, Figures: 4

Key Words: cryptogenic organizing pneumonia, panuveitis, scleritis

Cryptogenic organizing pneumonia is a idiopathic interstitial pneumonia characterized by subacute onset of cough and fever, rapid resolution with corticosteroids but frequent relapses, multiple patchy alveolar infiltrates on chest imaging, and the presence of granulation tissue buds in the distal airspaces histopathologically.[1-3] We herein report a patient with cryptogenic organizing pneumonia who developed a unique form of chronic panuveitis and scleritis.

Case Report

A 63-year-old woman presented with visual loss with ocular pain in the left eye. Nine months earlier, she had complained of fever and cough. Chest radiography had revealed infiltrates in the right upper and left lower lung fields (Fig. 1A). There had been no physical findings of Behçet's disease including oral and genital ulcers or erythema nodosum. She had been diagnosed with cryptogenic organizing pneumonia (COP) because histopathological analysis of percutaneous lung biopsies demonstrated plugs of granulation tissue within alveolar ducts and alveoli with mild inflammatory cell infiltration (Fig. 1B). She had refused to take oral corticosteroids.

Her visual acuity was 1.0 in the right eye (OD), and 0.3 in the left eye (OS). Slit-lamp examination demonstrated scleral injection OS (Fig. 1C), scattered punctate corneal subepithelial opacities in both eyes (OU), and non-granulomatous moderate anterior segment inflammation OU. Funduscopic examination showed diffuse vitreous opacity and hyperemic optic disk OU and cystoid macular edema and serous macular detachment OS. Fluorescein angiography showed late leakage from the optic disk and retinal capillary vessels markedly OU and cystoid macular edema OS (Fig. 1D). Laboratory investigations including angiotensin converting enzyme (11.7 IU/l), anti-nuclear antibody, rheumatoid factor, and antineutrophil cytoplasmic antibodies were within normal limits other than elevated leukocytes and C-reactive protein. Serological analyses including syphilis, human T-cell lymphoma virus-1, herpes simplex virus (HSV), varicella zoster virus (VZV), and Epstein-Barr virus were unremarkable. Tuberculin skin testing was negative. Human leukocyte antigen A-2, A-24, B-52, B-61, DR-2, and DR-4 were positive. Intraocular inflammation was reduced after topical betamethasone and posterior sub-Tenon's injections of triamcinolone acetonide.

Eight months later, panuveitis worsened and scleritis appeared OU. Administration of oral prednisolone (40 mg/day) improved not only uveitis but also clinical symptoms and pulmonary radiographic findings. (Fig.2) However, when this medication was tapered to 10mg/day, intraocular inflammation relapsed two times and required a dosage increase. The patient underwent the surgery for complicated bilateral cataract 19 months later. Polymerase chain reaction using the aqueous humor sample did not detect tuberculosis, HSV, or VZV.

Thirty-three months later, when oral prednisolone was tapered to 10mg/day, fundoscopy showed serous retinal detachment with submacular hemorrhage OD. These findings was resolved by posterior sub-Tenon's injections of triamcinolone acetonide and increase of oral prednisolone. Oral prednisolone treatment was continued for 39 months because she refused the other immunosuppressive therapy and at present 10mg/day was prescribed. Her visual acuity maintained to 1.2 OD, and 1.0 OS and there is not only minimum intraocoular inflammation but also no clinical symptoms of COP and minimum infiltlates on her chest radiogram.

Comments

This patient with COP developed a unique intraocular inflammation including punctuate corneal opacities, chronic panuveits, and anterior scleritis. In the differential diagnosis of sclerouveitis, sarcoidosis, tuberculosis, collagen diseases, infections, and Behçet's disease should be considered.[4] However, in this case, the results of histopathological findings, serological analyses, including autoantibodies and infection screen, Polymerase chain reaction of the aqueous humor, and the patient's physical findings, including in a relation to possible Behçet's disease, made it unlikely that any of these diseases were involved.

COP usually has good response for systemic corticosteroids treatment and favorable prognosis. However, when corticosteroids was tapered (usually to below 15mg/day) or stopped, one or more relapses occur and prolonged treatment tends to be continued. [1-3] Although the pathogenesis of COP is unknown, it is thought to be an immune-mediated process because of good response for corticosteroids.

In this case, the clinical course of intraocular inflammation was similar to that of COP and was influenced by corticosteroid dose, parallel to the progress of COP.(Fig.2) This suggests that COP and intraocular inflammation could be caused by a common primary immune-mediated process affecting both the lung and the eye, although the relationship between COP and intraocular inflammation are still unknown. To our knowledge, intraocular inflammation has not been previously reported in a patient with COP. In the future ophthalmologists might need to accumulate the cases with COP and intraocular inflammation, and to consider the possibility of a new clinical entity.

Acknowledgment.

This study was supported by a grant for Research on Sensory and Communicative Disorders from the Ministry of Health, Labor and Welfare, and by Grants-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan.

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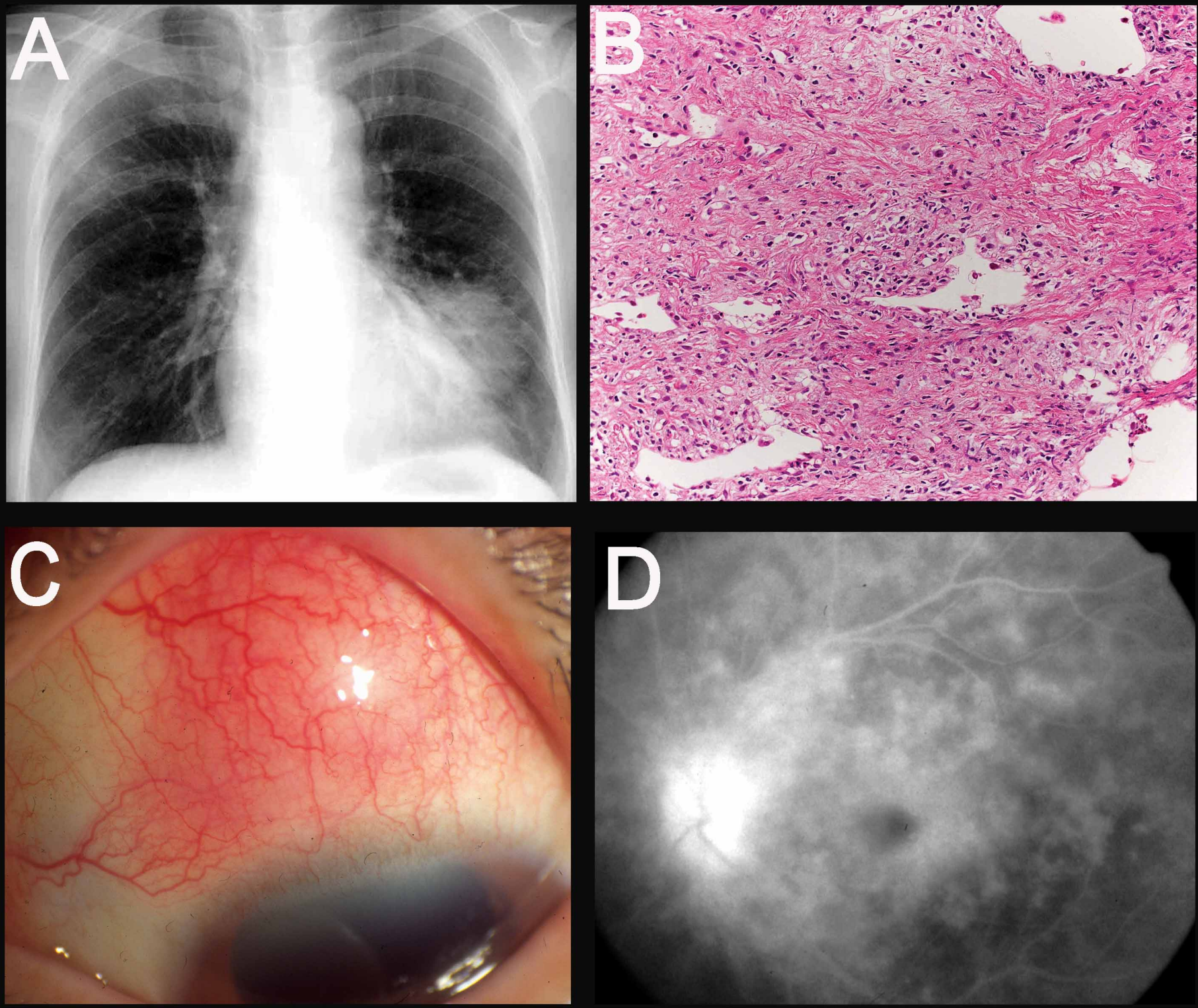
Figure Legends

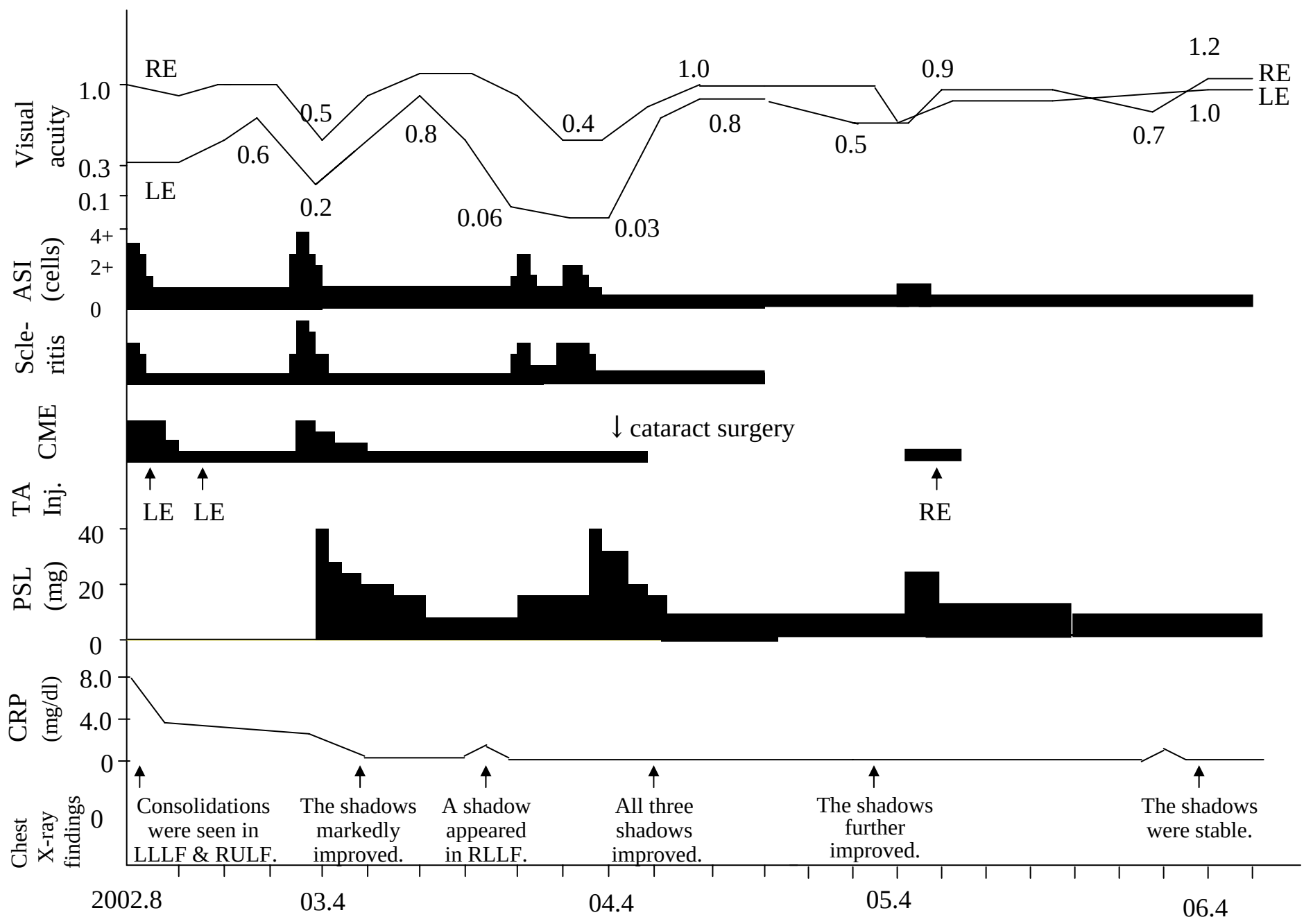
Figure 1A-D.

Chest radiogram, histopathological specimen of lung obtained by percutaneous lung biopsies, and photographs of the left eye at the initial visit. **A** Chest radiogram demonstrates infiltrates in the upper right and lower left lung fields. **B** Histopathological specimen of the lung demonstrates plugs of granulation tissue within alveoli with mild inflammatory cell infiltration. (H-E stain). *Bar* indicates 50 um. **C** Anterior diffuse scleritis in the superior quadrant. **D** Late-phase fluorescein angiography demonstrates cystoid macular edema and marked dye leakage from the optic disk and retinal capillary vessels.

Figure 2.

Clinical course of cryptogenic organizing pneumonia and intraocular inflammation.
LE, left eye; *RE*, right eye; *ASI*, anterior segment inflammation; *CME*, cystoid macular edema; *TA inj.*, triamsinolone acetonide posterior sub-Tenon's injection; *PSL*, prednisolone; *CRP*, C-reactive protein; *LLLF*, left lower lung field; *RULF*, right upper lung field; *RLLF*, right lower lung field.


A
B
C
D


Visual acuity
1.0
0.3
0.1
RE
LE
0.5
0.6
0.2
0.8
0.06
0.4
1.0
0.03
0.8
0.5
0.9
0.7
1.2
1.0
RE
LE
ASI (cells)
4+
2+
0
Scle-ritis
CME
↓ cataract surgery
TA Inj.
LE
LE
RE
PSL (mg)
40
20
0
CRP (mg/dl)
8.0
4.0
0
Chest X-ray findings
0
Consolidations were seen in LLLF & RULF.
The shadows markedly improved.
A shadow appeared in RLLF.
All three shadows improved.
The shadows further improved.
The shadows were stable.
2002.8
03.4
04.4
05.4
06.4