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**CASE REPORT** **OLGU SUNUMU**

# RELAPSING POLYCHONDRITIS AND STROKE

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## ABSTRACT

Relapsing polychondritis is a multisystemic autoimmune disease with a predilection for cartilaginous structures, causing recurrent episodes of chondritis. The most common presentations are auricular and nasal chondritis and arthritis; however, the disease may affect almost every part of body including heart, vessels, tracheobronchial tree and nervous system. Stroke has rarely been reported in patients with relapsing polychondritis. We present a case with stroke, probably due to vasculitis and other typical manifestations of relapsing polychondritis including auricular perichondritis, sensorineural hearing loss and ocular inflammation.
**Keywords:** Relapsing polychondritis, vasculitis, stroke.

# RELAPSİNG POLİKONDRİT VE İNME

## ÖZ

Relapsing polikondrit kartilajinöz yapılara afinitesi olan ve rekürren kondrit epizodlarına yol açan multisistemik otoimmün bir hastalıktır. En yaygın prezentasyonlar aurikuler ve nazal kondrit ve artrittir; bununla birlikte hastalık, kalp, damarlar, trakeobronşial ağaç ve sinir sistemi de dahil olmak üzere vücudun hemen her kısmını etkiler. İnme relapsing polikondrit hastalarında nadiren bildirilmiştir. Olasılıkla vaskülite sekonder inme geliştiren ve aurikuler perikondrit, sensorinöral işitme kaybı ve oküler inflamasyon dahil relapsing polikondritin diğer tipik özelliklerini gösteren bir olgu sunuyoruz.
**Anahtar Sözcükler:** Relapsing polikondrit, vaskülit, inme.

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## INTRODUCTION

Relapsing polychondritis (RP) is a rare, immune-mediated systemic disease characterized by recurrent inflammation and destruction of cartilaginous and proteoglycan-rich tissues (1,2). The estimated incidence is between 0.71 to 3.5 per million population per year (3,4). The most common presentation is chondritis of ear, nose, respiratory tract and joints; however, rarely, eyes, audio-vestibular apparatus, blood vessels and nervous system may be affected (2).

In this article, we present a patient with ischemic stroke secondary to probable vasculitis and typical clinical features of RP.

## CASE REPORT

A 49-years-old female patient with a history of hypertension and osteoporosis had undergone partial nephrectomy for clear cell renal cell carcinoma (RCC). She denied any previous episode of chondritis or arthritis. One day after the uneventful surgery, the patient complained of bilateral ocular pain and blurry vision. The best-corrected visual acuity was counting fingers at 1 meter in both eyes and there were circumlimbal injection and cells in the anterior chamber bilaterally. A diagnosis of bilateral anterior uveitis was made and the patient was treated with eye drops containing dexamethasone and cyclopentolate. However, the visual acuity continued to decline and a repeated fundoscopic examination revealed retinal infiltrates suggesting endogenous endophthalmitis (Figure 1).

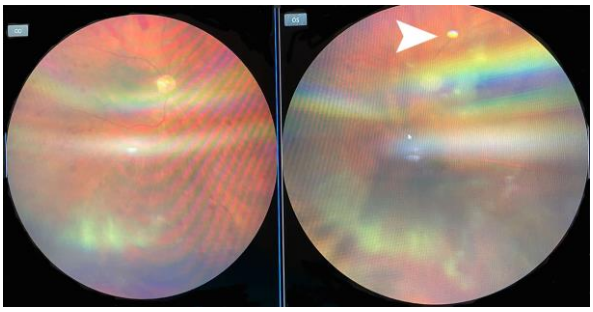

**Figure 1.** Dilated fundoscopic examination of the left eye shows retinal infiltrates, suggesting endogenous endophthalmitis (arrowhead).

After obtaining vitreous and blood cultures for fungal and bacterial pathogens, the patient was given intravitreous and intravenous amphotericin B, topical vancomycin and tobramycin eye drops and systemic antibiotics. However, no infectious agent could be detected. Follow-up fundoscopic examination showed dot and blot retinal hemorrhages (Figure 2).

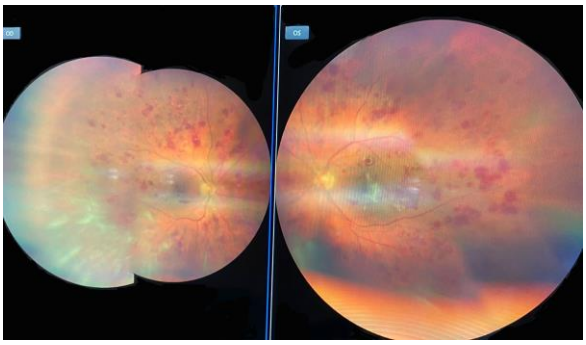

**Figure 2.** Follow-up fundoscopic examination of the both eyes shows dot and blot retinal hemorrhages.

Two days later, new symptoms of swelling, redness and pain of the bilateral ears and hearing loss emerged. As bilateral pinnae were swollen with the preservation of the earlobes which lack cartilage; a diagnosis of auricular chondritis was made (Figure 3). An audiometric evaluation showed bilateral complete sensorineural hearing loss and a temporal bone computed tomography (CT) revealed bilateral otomastoiditis.

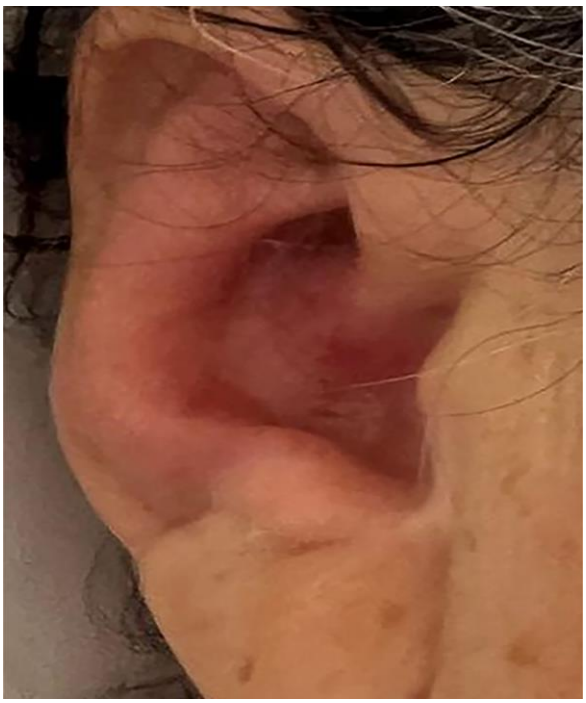

**Figure 3.** Auricular chondritis. Note the sparing of the earlobe which contains no cartilage.

Four days after the surgery, the patient suddenly developed consciousness disturbance and tetraparesis. Neurological examination revealed obtundation, tetraparesis (2-3/5 on Medical Research Council), and bilateral extensor plantar responses. At this time, brain magnetic resonance imaging (MRI) showed that there were multiple areas of diffusion restriction in the centrum semiovale, periventricular white matter, basal ganglia and the pons on both sides (Figure 4 A-D). The lesions were hyperintense on fluid attenuated inversion recovery (FLAIR) images. There were areas of contrast enhancement on post-contrast T1-weighted images and hypointensity on susceptibility-weighted images (SWI) indicating hemorrhage (Figure 5 and 6). In addition, the auricles were contrast enhancing (Figure 7).

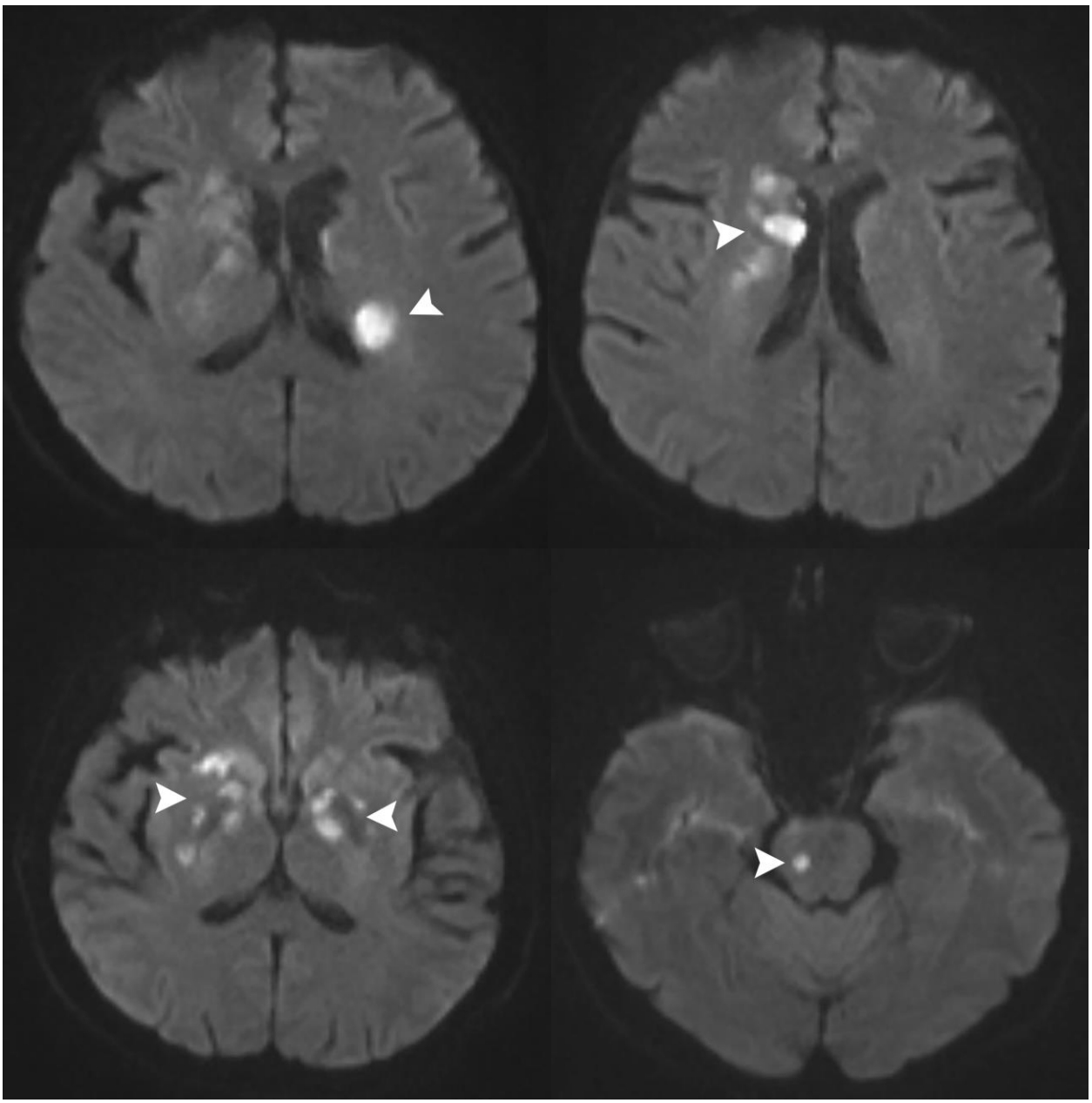

**Figure 4.** Brain MRI, axial DWI. Diffusion restriction in the 4A. Periventricular white matter, 4B and C. Basal ganglia and internal capsules, and 4D. Pons (arrowheads).

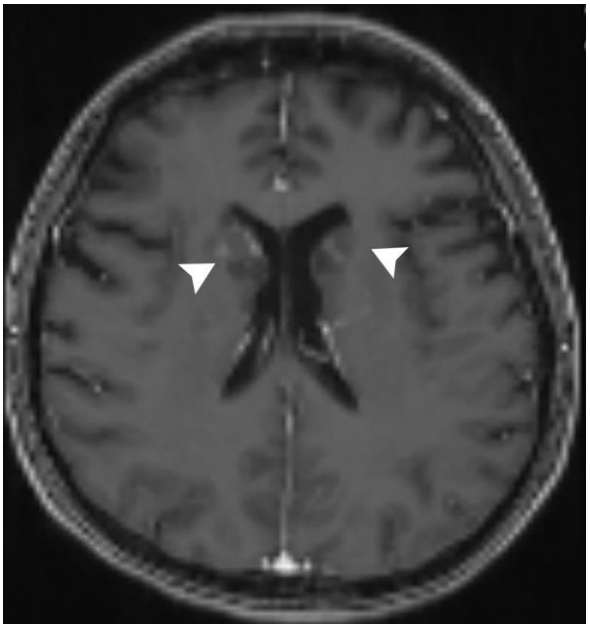

**Figure 5.** Brain MRI, axial post-contrast T1-weighted image. Punctate gadolinium enhancement in some of the lesions (arrowheads).

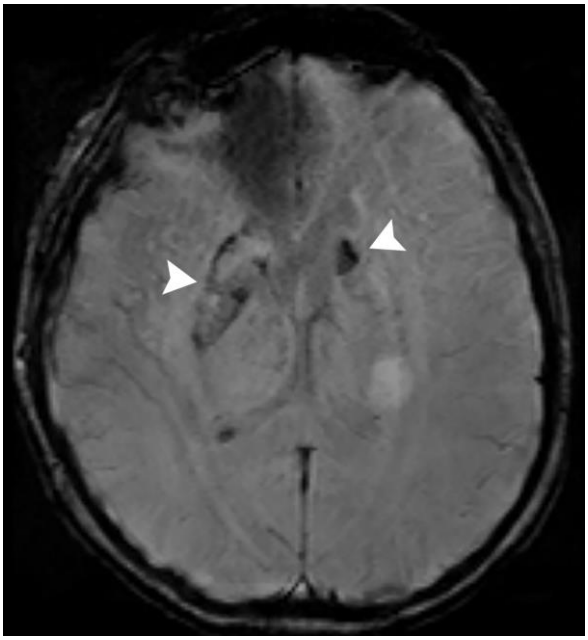

**Figure 6.** Brain MRI, axial SWI. Hypointense signal changes in the basal ganglia (arrowheads).

Blood tests showed leukocytosis and elevated C-reactive protein level and erythrocyte sedimentation rate (11.1 x 109/L, normal range 4-10.5 x 109/L; 263 mg/L, normal range: 0-5 mg/L; 87 mm/h, normal range 0-20 mm/h, respectively). Serological tests for antinuclear, anti - double stranded DNA, antiphospholipid, anti-myeloperoxidase and anti-proteinase-3 autoantibodies, hepatitis viruses and human immunodeficiency virus were negative except hepatitis B surface antibody. Tests for D-dimer level, coagulation, liver and renal functions and serum electrolytes did not show any abnormality. Cerebrospinal fluid (CSF) protein and glucose levels were within normal limits (27.8 mg/dl, normal range: 15-45 mg/dl and 79 mg/dl, simultaneous blood glucose 111 mg/dl, respectively). There were no cells in CSF. Blood and CSF microbiological analyses for bacteria, fungi, herpesviruses, tuberculosis and syphilis were negative. Electrocardiogram, transthoracic and transesophageal echocardiogram and CT angiography of the brain and the neck vessels did not show any abnormality. The findings of the histopathological examination and positron emission tomography scan of whole body indicated that the tumor was limited to kidney and there was no lymph node involvement or distant metastasis of RCC.

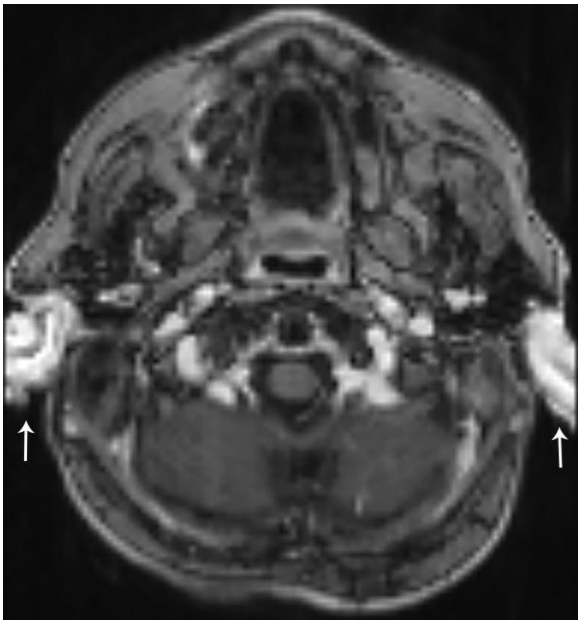

**Figure 7.** Brain MRI, axial post-contrast T1-weighted image. Bilateral auricles are gadolinium-enhancing (arrows).

The diagnosis of RP was made and the patient was treated with intravenous methylprednisolone (1 gr/d for 10 days) followed by intravenous immunoglobulin (0.4 gr/kg/d for 5 days). Because of ongoing disease activity, use of a more potent immunosuppressive medication was necessitated. After multidisciplinary consultation, infliximab

was given to the patient considering that the tumor was limited to kidney and the course of RP was very aggressive. After the treatment, the patient's clinical picture was stabilized with residual neurological, visual and auditory disability. Of note, informed consent was obtained from the patient for this case report.

## DISCUSSION AND CONCLUSION

The exact pathogenesis of RP has not been fully elucidated yet. The proposed mechanism is cartilage-specific autoimmunity as autoantibodies against collagens II, IX and XI have been detected in sera of patients with RP (2).

The disease has a heterogeneous presentation with severity ranging from isolated auricular chondritis to life-threatening systemic involvement (1,2). RP has a relapsing-remitting course with acute, painful inflammation episodes and asymptomatic remission periods (1). The most common sites of involvement are proteoglycan-rich structures including ears, nose, larynx, tracheobronchial tree and cartilaginous parts of ribs and the most frequent manifestation is auricular chondritis; a red swollen pinna in conjunction with preserved earlobe is typical (1,2). Laryngotracheobronchial involvement causing airway collapse is the most common causes of morbidity and mortality (1). Other manifestations including arthritis, skin lesions and heart, large arteries and renal involvement have also been reported (1,2).

Our patient had complete bilateral sensorineural hearing loss. Almost up to half of patients with RP have hearing impairment (2,5). In addition to typical conductive hearing loss due to outer ear involvement, sensorineural hearing loss resulting from internal ear inflammation or internal auditory artery vasculitis has also been reported (2,5). Ocular manifestations including keratitis, episcleritis, scleritis, conjunctivitis, uveitis, orbital inflammation have been reported in 20-61% of patients (6). Other less frequently reported ocular manifestations are retinopathy, retinal vein and artery occlusion and optic neuropathy (6). Simultaneous bilateral involvement and recurrences are common. Initial symptoms are ocular symptoms in 11.5% of patients with RP (7). This may render diagnosis quite difficult. The first presentation of RP in our patient was bilateral vision loss due to anterior uveitis and hemorrhagic retinopathy. Until the other manifestations of RP developed, our patient was diagnosed as bilateral anterior uveitis and endogen endophthalmitis; however, no infectious cause could be found and the treatment with antimicrobials was unsuccessful.

Neurological involvement is rare in RP; approximately 3% of patients have neurological manifestations including aseptic meningitis, encephalitis, cranial nerve palsy and myelitis (2,8). Stroke has been reported very rarely in patients with RP (9-12). Vasculitis detected by biopsy or vessel wall imaging has been reported in some patients (13). Ellis et al. (14) suggested that central nervous system vasculitis is the proposed mechanism in RP patients with fulminant, multisystemic presentation with subacute neurological deterioration. Owing the abrupt onset of neurological deterioration and widespread diffusion restriction on brain MRI in conjunction with multisystemic symptoms including auricular perichondritis and ocular and inner ear involvement, we suggest that vasculitis could be the underlying mechanism of the central nervous system manifestations in our patient. We did not perform catheter angiography or histopathological examination which may show vasculitic changes; we made the diagnosis of RP on clinical grounds as our patient fulfilled the diagnostic criteria (15). However, we excluded other causes of stroke by extensive investigations including CT angiogram of the brain and the neck vessels, cardiac investigations, tests for coagulation disorders, infections, and other rheumatic diseases. Therefore, we suggest that stroke could be attributed to vasculitis in our patient.

The co-occurrence of RP with other autoimmune diseases is well-known (16). In recent years, association with cancer, especially hematological malignancies, has been reported (17,18). Currently, it is unknown whether RP is a paraneoplastic disorder in these patients. In addition, there are reports of acute exacerbations of RP triggered by surgery (19). The proposed mechanism is the exposure to own cartilage antigens causing an autoimmune response (19). We do not know whether RP is a paraneoplastic disorder or triggered by surgery in our case.

As RP is a rare disease, there are no controlled trials for treatment. Expert opinions include corticosteroids and immunosuppressive medications for severe cases (2). Most patients

respond well to these treatments.

In conclusion, auricular chondritis sparing earlobes, ocular inflammation, sensorineural hearing loss in conjunction with acute neurological deficits should alert physicians for RP. Vasculitis is the suggested mechanism in some patients with RP-related stroke. Corticosteroids and/or immunosuppressive medications are the drugs of choice.

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**Ethics**

**Informed Consent:** The authors declared that informed consent form was signed by the patient.

**Copyright Transfer Form:** Copyright Transfer Form was signed by the authors.

**Peer-review:** Internally peer-reviewed.

**Authorship Contributions:** Surgical and Medical Practices: ÖKY, HK. Concept: ÖKY, HK. Design: ÖKY, ES, AD. Data Collection or Processing: ÖKY, AVÖ. Analysis or Interpretation: ÖKY, HK, ES, AD, AVÖ, BY. Literature Search: ÖKY, AD, BY. Writing: ÖKY, HK, ES, AD, AVÖ, BY.

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