UREMIC PLEURITIS IN END STAGE RENAL DISEASE PATIENT ON CHRONIC HEMODIALYSIS

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ABSTRACT

Pleural effusions can develop as a direct consequence of uremia (uremic pleuritis) which occurred in 40% of the end stage renal disease patients on chronic hemodialysis in one study. The diagnosis of uremic pleuritis is challenging as there is no pathognomonic diagnostic test.

In this case, a 68 year old woman who is known to have end-stage chronic renal failure on chronic hemodialysis with shortness of breath was admitted. Previously, the patient had undergone pleurocentesis twice in 2 week intervals. Further examination found a unilateral pleural effusion. Therapeutic pleurocentesis was done uneventfully and modified light's criteria was exudated. Adenosine deaminase 15.5 U/L, negative bacterial and mycobacterial. Pleural fluid cytology revealed nonspecific chronic inflammation, no lymphocytic effusion and no malignant cells was noted.

Uremic pleuritis is diagnosed by excluding other causes that persists or recurs despite aggressive haemodialysis. A close relationship between the degree of uremia and the occurrence of pleural effusions has not been found. Effusion is exudative with predominant lymphocytes and cytology reveals nonspecific chronic inflammation. Most patients respond to continuation of hemodialysis, but corticosteroids may have benefit for refractory uremic pleuritis. Some patients may develop pleural fibrosis with a trapped lung and about 20% of cases the pleuritis persists, recurs or occasionally progresses to restrictive ventilatory dysfunction that needs decortication.

We need to consider this diagnosis in patients with end-stage renal disease despite routine hemodialysis because of the high incidence of uremic pleuritis. There are no pathognomonic signs, so all causes of pleural effusion must be excluded first.

Keyword: uremic pleuritis, end stage renal disease, pleural effusion

ABSTRAK

Efusi pleura dapat disebabkan akibat uremia (pleuritis uremik) yang terjadi pada 40% pasien gagal ginjal stadium akhir yang telah rutin hemodialisa pada suatu penelitian.

Pada laporan kasus, seorang wanita berusia 68 tahun yang diketahui gagal ginjal kronis stadium akhir telah rutin hemodialisa masuk ke rumah sakit dengan keluhan sesak napas. Sebelumnya, pasien telah menjalani dua kali pleurosintesis dalam interval 2 minggu. Pemeriksaan lebih lanjut ditemukan efusi pleura unilateral. Pleurosintesis terapeutik dilakukan dan light's criteria menunjukkan eksudat. Pemeriksaan adenosine deaminase 15,5 U/L, tidak ditemukan bakteri dan mikobakterium pada cairan pleura. Hasil sitologi menunjukkan peradangan kronis non spesifik dan tidak ditemukan sel ganas dan sel limfosit dalam jumlah banyak (lymphocytic effusion).

Pleuritis uremik adalah diagnosa per eksklusionam yang dapat menetap atau berulang meskipun hemodialisa telah rutin dilakukan. Tidak ada korelasi antara derajat uremia dan terjadinya efusi pleura. Efusi eksudatif dengan limfosit dominan dan sitologi menunjukkan peradangan kronis non-spesifik. Sebagian besar pasien berespons terhadap hemodialisis, namun kortikosteroid dapat menjadi pilihan terapi pada pleuritis uremik refrakter. Beberapa pasien dapat terjadi fibrosis pleura dan sekitar 20% kasus pleuritis menetap, berulang dan menyebabkan disfungsi ventilasi restriktif sehingga memerlukan dekortikasi.

Dengan tingginya insiden pleuritis uremik, kita perlu mempertimbangkan diagnosis ini pada pasien dengan penyakit ginjal stadium akhir meskipun telah rutin hemodialisa. Tidak ada tanda patognomonis pada pleuritis uremik, sehingga semua penyebab efusi pleura harus disingkirkan terlebih dahulu.

Kata kunci: pleuritis uremik, penyakit ginjal stadium akhir, efusi pleura.

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INTRODUCTION

Pleural effusions are common in patients receiving chronic hemodialysis. It can develop as a direct consequence of uremia (uremic pleuritis) which occurred in 40% of the patients in one study.[1,2] The diagnosis of uremic pleuritis is challenging as there is no pathognomonic diagnostic test.

CASE REPORT

A 68-year-old woman was known to have end-stage renal disease for 1 year of routine dialysis twice a week, was admitted with shortness of breath since 1 month prior and worsening in the last 1 week. There was no fever, chronic cough and weight loss. There was no history of tuberculosis. Previously, the patient had undergone pleurocentesis twice in 2 week intervals. On physical examination, the patient was tachypnea, decreased breath sounds and dullness to percussion on the left chest was noted. Cardiac examination was unremarkable. Results of laboratory studies showed a serum creatinine level of 5.38 mg/dL, ureum of 116 mg/dL. Chest radiograph revealed a left-sided pleural effusion occupying more than half of the hemithorax (figure 1).

Therapeutic Pleurocentesis was done uneventfully, and produced 1300 ml serosanguineous effusion fluid. Mycobacterium tuberculosis examination was carried out by the molecular rapid test method (Xpert MTB/Rif). Cytology, chemistry, adenosine deaminase and microbiology tests were conducted in table 1. Pleural fluid cytology revealed nonspecific chronic inflammation, no lymphocytic effusion and no malignant cells was noted.

The patient was diagnosed with uremic pleuritis in end stage renal disease. Hemodialysis was continued and the patient was evaluated if refractory uremic pleurisy occurs.

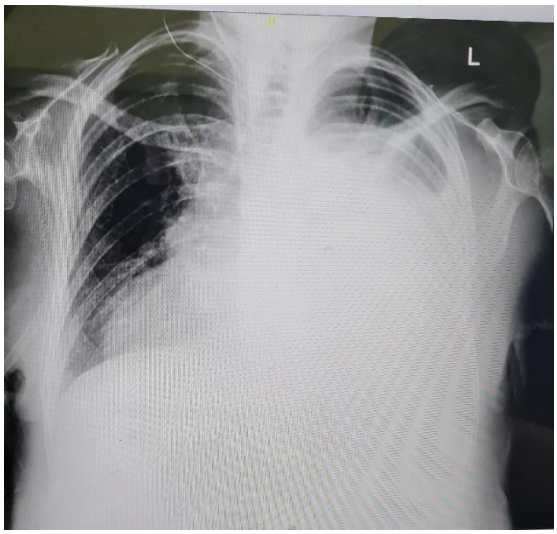

Figure 1. Rontgen Thorax

Table 1. Analysis of Pleural Fluid

Parameter	Result
Colour	Red
Turbidity	Turbid
Cell Count	164 cell/µL
PMN/MN	17,2%/ 82,8%
Protein of pleural fluid	4340 mg/dl
Protein of serum	6700 mg/dl
Glucose	145 mg/dL
Lactate dehydrogenase of pleural fluid	352 U/L
Lactate dehydrogenase of serum	245 U/L
ADA test	15,5 U/L
Gram	Not detected
Mycobacterium Tb	Not detected
Lymphocytic effusion	Not found
Malignant cells	Not found

DISCUSSION

The diagnosis of uremic pleuritis is challenging as there is no pathognomonic diagnostic test. Exclusion of other causes of exudative pleural effusion like malignancy and tuberculosis is necessary before the confirmative diagnosis.[5] The onset or size of effusions related to uremic pleuritis does not correlate with the severity of underlying uremia or timing of hemodialysis.[2] Effusions are unilateral in 80% of patients and may be large.[4] It persists or recurs despite aggressive haemodialysis.[3] It results from inflammation of the visceral and parietal pleural membranes and its pathogenesis is poorly understood.[4] The characteristic exudative effusion is typically serosanguineous or hemorrhagic with a predominance lymphocytes.[1] Pleural biopsy is critical for the diagnosis and shows nonspecific chronic fibrinous inflammation. Conventionally, uremic pleuritis has been treated with regular hemodialysis, repeated thoracentesis or chest tube drainage, but corticosteroids like prednisolone 1 mg/kg/day for 2-6 weeks may have benefit and can be considered as a therapeutic option for refractory uremic pleuritis[5]. About 20% of cases progresses to restrictive ventilatory dysfunction that needs decortication.[4]

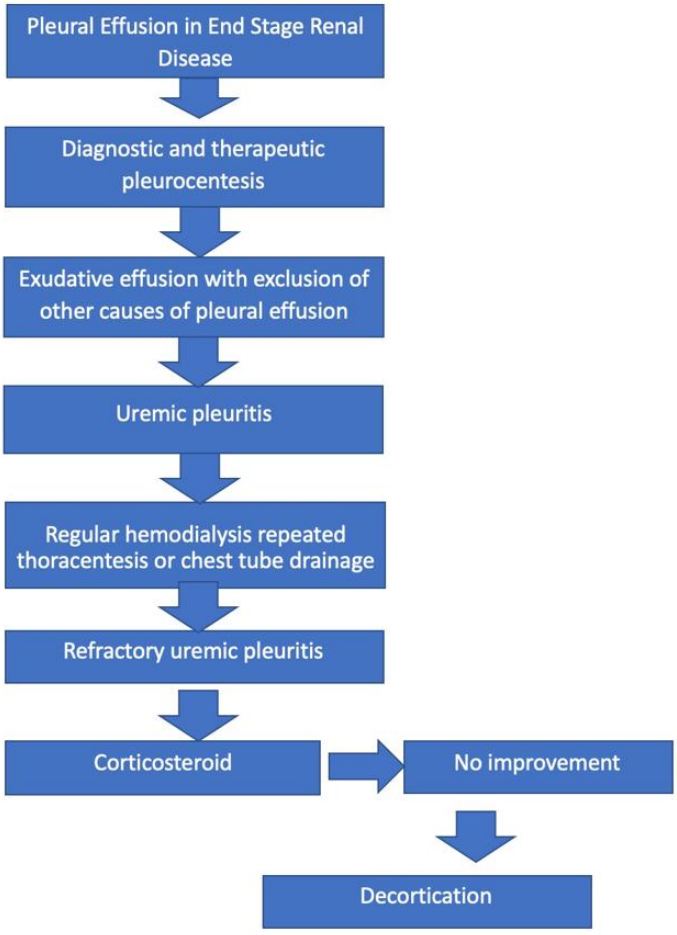

Fig.2 Algorithm Diagnostic and Therapeutic Uremic Pleuritis

CONCLUSION

We need to consider this diagnosis in patients with end-stage renal disease despite routine hemodialysis because of the high incidence of uremic pleuritis. There are no pathognomonic signs, so all causes of pleural effusion must be excluded first.

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