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All Hemorrhagic Pleural Effusions are Not Infective

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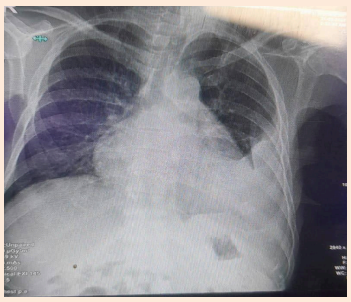
Case Vignette

A middle aged male, who has been suffering from Chronic kidney Diseases-5D, Chronic heart failure and hypertension non-compliant to medications and renal replacement therapy (RRT), presented with decreased urine output, anorexia, shortness of breath, bilateral pedal oedema, abdominal distention, productive cough and vomiting over the past 8-10 days. There was no history of chest trauma, significant weight loss, fever, or night sweats. Routine investigations revealed severe uraemia (Urea - 290 mg/dl) and a normal INR [1.07]. Chest X-ray suggested left pleural effusion and abdominal ultrasound revealed ascites, both atypical fluid collections were grossly haemorrhagic upon tapping. Empirically, the patient was treated with ceftriaxone and azithromycin for a suspected infective aetiology; however, there was no significant clinical improvement. Further evaluation, including a contrast-enhanced CT thorax, suggested malignancy as a cause of the hemorrhagic effusion. The patient received alternate day RRT and demonstrated clinical and vital improvements. Follow-up imaging, including X-ray and point-of-care ultrasound, revealed complete resolution of the pleural effusion and ascites.



Chest X-ray -> Gross left-sided pleural effusion.

Hemorrhagic pleural effusion

Ques. Which of the following best reflects a key principle of stewardship in this case?

A. Antibiotic therapy should be started empirically in patients with suspected infection, and stopped only after cultures confirm the absence of infection

B. Empirical use of antibiotics was appropriate due to the presence of respiratory symptoms and radiological findings, even without microbial confirmation

C. Before initiating antibiotic therapy, a thorough diagnostic workup, including pleural fluid analysis and uremic workup, should have been prioritized to avoid unnecessary antimicrobial use

D. Given the patient's non-compliance and systemic symptoms, broad-spectrum antibiotics were necessary to cover potential multidrug-resistant organisms

Answer:- **C.** Before initiating antibiotic therapy, a thorough diagnostic workup, including pleural fluid analysis and uremic workup, should have been prioritized to avoid unnecessary antimicrobial use

Comments

Hemorrhagic pleural effusions can arise from various non-infective causes, including malignancy, trauma, pulmonary embolism, uraemia and certain inflammatory conditions. If uraemia is a potential cause, then effective RRT helps manage fluid overload and corrects coagulopathy associated with advanced kidney disease.[1] When managing a patient with a hemorrhagic pleural effusion, it's essential to carefully evaluate the underlying cause before initiating antibiotics. Overuse of antibiotics in such cases, where the effusion is not due to an infectious process, can contribute to antimicrobial resistance, unnecessary side effects, and increased healthcare costs.[2]

Surviving Sepsis Campaign Guideline (2021) recommends daily assessment for possible antimicrobial de-escalation over using fixed durations of therapy and early discontinuation of all antimicrobial therapy if the infection is ruled out.[3] So in our case, when non-infective diagnosis was confirmed, all ongoing antimicrobials were stopped at the right time which is another stewardship principle under De-escalation to curtail this rising AMR.

References

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