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RESEARCH ARTICLE

ATYPICAL PNEUMONIA PRESENTING AS HYPONATREMIA: A CASE REPORT

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ABSTRACT

Atypical pneumonia is atypical in presentation with only moderate amounts of sputum, no consolidation, only small increases in white cell counts and no alveolar exudates; and sometimes, not even presenting with respiratory symptoms. Here we present a case of a 65 years old elderly man who presented with disorientation, hiccups and loss of appetite. He was a known diabetic and hypertensive. On presentation patient had a SpO2 of 96%. Lab reports were suggestive of severe hyponatremia of 92meq/L and clinically he was euvolaemic. Chest X-ray showed right sided consolidation. However he did not have any breathlessness or cough. He was given sodium correction and antibiotics for the consolidation and was treated as a community acquired pneumonia. Patient showed signs of improvement. All other causes for hyponatremia were ruled out. However, the patient again presented with same symptoms after 1 month with hyponatremia of 95meq/L and left sided consolidation. He was again given sodium correction. Patient did not produce sputum so bronchial lavage was done and sent for culture sensitivity which showed chlamydia infection. Antibiotics were given according to the sensitivity. Patient improved clinically. On follow up after 1 month patient had normal x ray and normal sodium levels. Hence repeated episodes of hyponatremia associated with pneumonia were hypothesized to be caused by atypical pneumonia caused by chlamydia- a rare presentation.

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INTRODUCTION

Pneumonia is predominantly a clinical syndrome. Atypical pneumonia, also known as walking pneumonia, is the type of pneumonia not caused by one of the more traditional pathogens. Its clinical presentation contrasts to that of "typical" pneumonia, with only moderate amounts of sputum, no consolidation, only small increases in white cell counts, and no alveolar exudates (Cunha, 2006). A variety of microorganisms can cause it. When it develops independently from another disease it is called primary atypical pneumonia (PAP). The classic etiologic agents of atypical pneumonia are Legionella species, Mycoplasma pneumoniae, and Chlamydia pneumoniae. Many other diseases, caused by various pathogens, should be considered in the differential diagnosis. Such etiologic agents include fungi, mycobacteria, parasites, and viruses (Tang, 2003) (eg, influenza virus, adenovirus, respiratory syncytial virus, human parainfluenza virus, measles, varicella zoster, Hantavirus). In immunosuppressed patients, outbreaks of isolated cases of respiratory virus infections with atypical presentations are reported.

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These infections can be severe and may have concomitant bacterial etiologies. In endemic areas, certain zoonotic infections should be considered when patients present with atypical pneumonia. Noninfectious etiologies must be considered in atypical and nonresolving pneumonias.

Signs and Symptoms

Usually the atypical causes also involve atypical symptoms:

- No response to common antibiotics such as sulfonamide (Commission on Acute Respiratory Diseases, 1944) and beta-lactams like penicillin.
- No signs and symptoms of lobar consolidation (Gouriet, 2006; Hindiyeh and Carroll, 2000). meaning that the infection is restricted to small areas, rather than involving a whole lobe. As the disease progresses, however, the look can tend to lobar pneumonia.
- Absence of leukocytosis.
- Extrapulmonary symptoms, related to the causing organism (Cunha, 2006).
- Moderate amount of sputum, or no sputum at all (i.e. non-productive).
- Lack of alveolar exudates (Kumar *et al.,* 2010).

- Despite general symptoms and problems with the upper respiratory tract (such as high fever, headache, a dry irritating cough followed later by a productive cough with radiographs showing consolidation), there are in general few physical signs. The patient looks better than the symptoms suggest (Commission on Acute Respiratory Diseases, 1944; Walter and McCoy, 1946).

CASE REPORT

A 65 year oldelderly male presented with complaints of drowsiness and disorientation, hiccups, loss of appetite, cough. He was a known case of diabetes and hypertension since 20 years, on regular treatment. (Tab. olsar 40od, Tab. Glycomet G1 od). Also a known case of bronchial asthma since 1 year. There was no past history of similar episodes and no significant drug history. On examination patient was drowsy and disoriented, was afebrile with a pulseof 88 beats per minute and blood pressure of 190/100 mm/Hg. Patient was very pale and had grade 3 clubbing in both upperlinb and lower limb. He was maintaining oxygen saturation at 97% on room air and was not dyspnoeic. His blood sugar levels at presentation were 143 mg/dl. On respiratory system examination, ronchi and crepts were appreciated throughout the lung field. On central nervous system examination, patient was drowsy and disoriented, was unable to follow all the commands, with a GCS of 10/15. His plantars were flexors and deep reflexes were all decreased.

Routine workup was done and his laboratory investigation were as follow

Investigations	Results
CBC:	
Hb	11.9
TLC	25.6
Platelet	278
Electrolytes:	
Sodium	92
Potassium	3.4
chloride	61
Creatinine/ BUN / urea	0.5/4.5/9.8
Liver function test:	
Total bilirubin	1
Direct/ indirect	0.3/0.7
SGOT	26
SGPT	17.6
Alkaline phosphatase	104.8
Total protein/ albumin	6.4/4

All other causes for hyponatremia were ruled out.
Chest skiagram (PA) was suggestive of right lower lobe pneumonia and his Computed tomography Brain showed mild cerebral atrophy. However he did not have any breathlessness or cough, we started his treatment for pneumonia. He was given sodium correction for hyponatremia and antibiotics for the consolidation and was treated as a community acquired pneumonia. Patient showed signs of improvement. Blood culture and sputum culture was not significant for any organism growth. Patient improved and was discharged.

Diagnostic Features Suggestive of Community-Acquired Pneumonia Caused by Atypical Pathogens (Cotton *et al.,* 1987**)**

Diagnostic feature	Mycoplasma pneumonia	Chlamydia pneumoniaepneumonia	Legionella species pneumonia
History			
Abdominal pain	–	–	+
Confusion	+/–	–	+
Diarrhea	+/–	–	+
Ear pain	+/–	–	–
Headache (mild)	+	–	–
Myalgias	+	+/–	+
Pleuritic pain	+/–	–	+
Sore throat	+	+	–
Physical signs			
Cardiac involvement	+/–	–	–
Lobar consolidation	+/–	–	+/–
Hemoptysis	–	–	+
Pharyngitis (nonexudative)	+	+	–
Rash	+/–	–	–
Raynaud's phenomenon	+/–	–	–
Chest radiograph	Patchy infiltrate	Funnel-shaped or circumscribed infiltrate	Patchy consolidation
Laboratory test results			
Cold agglutinins	+	–	–
Hyponatremia	–	–	+
Leukocytosis	+/–	–	+
Microscopic hematuria	–	–	+
Transaminase elevation	–	–	+

— =rarely; +/– = occasionally; + = often.

His sodium levels were on the lower side and so he was investigated for the cause of hyponatremia in which the following was found:

Urine electrolytes:
Sodium 108
Potassium 3.5
Chloride 80
Urine osmolality : 110 mOsm/L
Plasma osmolarity : 200

However, the patient again presented with same symptoms after 1 month with hyponatremia of 95meq/L and left sided consolidation. He was again given sodium correction.This time patient was also investigated for atypical pneumonia keeping in mind his atypical presentation. Patient did not produce sputum so bronchial lavage was done and sent for culture and sensitivity which was positive for Chlamydia Pneumonia and Chlamydia pneumonia IgMtitres also came out to be positive.. Antibiotics were given according to the sensitivity. Patient

improved clinically. On follow up after 1 month patient had normal x ray and normal sodium levels.

DISCUSSION

Chlamydia pneumoniae is an obligate intracellular organism capable of persistent latent infection. Humans are the only known reservoir. Transmission results from contact with respiratory secretions, with an incubation period of several weeks.C. pneumoniae infection is more likely to occur in older patients with comorbid diseases than in those who are otherwise healthy (Kauppinen and Saikku, 1995). Patients with C. pneumoniae infection often present with sore throat, headache, and a cough that can persist for months if treatment is not initiated early (Wright *et al.,* 1997). Sputum is usually scant or nonexistent, and a low-grade fever is usually present. Chest radiographs tend to show less extensive infiltrates than are seen with other causes of pneumonia, although significant infiltrates have been reported (McConnell *et al.,* 1994). Most cases of C. pneumoniae infection are mild, but severe disease can occur, necessitating admission to an intensive care unit. The mortality rate has been estimated to be 9 percent, and death usually is associated with secondary infection and underlying comorbid disease (Fine *et al.,* 1996).

Very few case reports are present where patients with chlamydia pneumonia infection present with atypical symptoms like hyponatremia thus making this case report a rare presentation. Although many cases of Legionnaires' disease have been reported where patients present with a wide spectrum of symptoms ranging from mild cough and low-grade fever to high fever, altered mental status, and respiratory failure.[15] Nonspecific symptoms may occur early in the disease and include headache, muscle aches, anorexia, and malaise (Stout, 1997). Atypical pneumonia causes hyponatremia by causing SIADH. Elderly patients with atypical pneumonia may present with few respiratory signs or symptoms of pneumonia. Instead, they may have altered mental status or a history of falls (Marrie, 2003). Keeping these points in mind we should always keep atypical pneumonia in mind, as a differential in a elderly patient presenting with signs and symptos of hyponatremia.

Treatment

Macrolides are the first-line antibiotics for the treatment of C pneumoniae pneumonia (Mandell *et al.,* 2007; Blasi *et al.,* 2009). Newer macrolides such as azithromycin (500 mg PO/IV once daily) and clarithromycin (1 g PO once daily [clarithromycin XL] or 500 mg PO twice daily) are better tolerated than erythromycin (250-500mg PO 4 times a day). Treatment should be continued for at least 10-14 days after defervescence. If symptoms persist, a second course with a different class of antibiotics is usually effective. Fluoroquinolones, including levofloxacin (500 mg PO/IV once daily for 10-14 days or 750 mg PO/IV once daily for 5 days) and moxifloxacin (400 mg PO/IV once daily for 10-14 days) are also alternative options (Kohlhoff and Hammerschlag, 2015). Studies investigating the efficacy of erythromycin, clarithromycin, azithromycin, levofloxacin, and moxifloxacin have shown similar results (70-86%) for the eradication of the organism from the nasopharynx (Roblin and Hammerschlag, 1998; Hammerschlag and Roblin, 2000).

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