CASE REPORT

Septic arthritis and smoldering myeloma

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Learning points for clinicians

Pneumococcus is a rare causative agent of septic arthritis. The diagnosis of pneumococcal septic arthritis should direct further investigation of systemic immunosuppression. Acquired immunodeficiency including lymphoproliferative disorders and myeloma should be considered in patients with invasive pneumococcal infection, especially in musculoskeletal infections.

Case report

A 52-year-old woman presented with 5 days history of fever with chills and severe pain of the left wrist and shoulders. Physical examination was notable for swollen left wrist and painful right acromioclavicular joint. Laboratory evaluation revealed elevated inflammation markers (C-reactive protein – 39 mg/dl (0.5 mg/dl)). Auto-antibodies against antinuclear, rheumatoid factor, and Anti-cyclic citrullinated peptide were negative. Synovial fluid analysis demonstrated an elevated leukocyte count. Blood and joint fluid cultures were positive for Pneumococcus. The patient was treated with Ceftriaxone intravenously under the diagnosis of Pneumococcal oligoarthritis, bacteraemia and soft tissue infection.

Transthoracic echocardiography ruled out vegetations. Chest and abdominal CT followed by magnetic resonance imaging showed findings compatible with septic arthritis of the right acromioclavicular joint and mediastinal microabscesses with involvement of the pectoralis major and the right psoas muscle (Figure 1).

Whole-body CT exam showed intact spleen and did not identify obvious solid malignancy, HIV serology was negative. Quantitative immunoglobulins level demonstrated elevated IgG levels (2700 mg/dl); and low levels of IgM and IgA (35 and 44 mg/dl, respectively) with monoclonal peak of IgG k type (2100 mg/dl). Bone marrow biopsy demonstrated clonal plasma cell infiltration of 30%. Since the patient did not have any evidence for symptomatic myeloma, a diagnosis of IgG k smoldering myeloma was made. The patient was treated with IV antibiotics for 6 weeks and was followed by serial imaging studies as an outpatient. Her clinical condition improved progressively with complete resolution of her symptoms. In the face of her low polyclonal immunoglobulins level, we evaluated the ability of her humoral system to produce specific antibodies. The patient was vaccinated with pneumococcal and tetanus–diphtheria vaccines. Indeed, both vaccinations yielded suboptimal-specific antibody titres as measured 2 months after vaccination.

Discussion

Our case report describes an apparently healthy woman who presented with invasive infection—pneumococcal oligoarthritis, bacteraemia and soft tissue infection.

Pneumococcus is the causative agent of only 6% of cases of septic arthritis. Approximately one-third of pneumococcal septic arthritis cases in adults are oligo/polyarticular.¹–³ The major risk factors for pneumococcal arthritis in adults include rheumatoid arthritis, prosthetic joints and splenectomy. Invasive pneumococcal disease in a healthy adult should lead to further investigation for an underlying disease including primary immunodeficiencies, but also acquired immunodeficiency including—HIV, lymphoproliferative disorders and specifically multiple myeloma.¹–⁴ Recent studies identified genetic susceptibility for invasive Pneumococcal infections in adults. Genetic variation in control of the proinflammatory transcription factor NF-kB appears to play a key role in host defence against pneumococcal disease.⁵

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There is a known association of multiple myeloma with a diverse array of infections, the mostly common found organisms are polysaccharide encapsulated bacteria, especially Pneumococcus.\(^1\)\(^,\)\(^6\) However, acute infection as the initial presentation of myeloma is uncommon. Pneumococcaemia, especially with musculoskeletal infection, should raise the suspicion of an underlying myeloma and should prompt further investigations.\(^1\)\(^,\)\(^2\)\(^,\)\(^5\)

Patients with plasma cell dyscrasia often fail to adequately respond to pneumococcal vaccination. Therefore, patients with plasma cell dyscrasia and history of severe infection will be considered for prophylactic Immunoglobulin (IVIG) therapy.\(^2\)\(^,\)\(^6\)

Treatment for the underlying smoldering (asymptomatic) myeloma is still a matter of controversy. Although limited data from recent trials demonstrated that high risk patients may benefit from treatment, the current recommendations are to continue to follow these patients and to treat the smoldering myeloma only in the context of clinical trial. After 6 months of follow-up, our patient continues to do well with no recurrence and no evidence of progression to symptomatic myeloma.

**Conclusion**

Though the presentation of myeloma as an infectious episode is rare, this entity should be ruled out in front of an invasive pneumococcal infection without an obvious predisposing disease.

**Conflict of interest:** None declared.

**References**