



SHORT REPORT

<http://www.elsevier.com/locate/jiph>

Group B streptococcal infective endocarditis

Mahmoud Abdelghany*, Louis Schenfeld

Department of Medicine, Conemaugh Memorial Medical Center, 1086 Franklin Street, Johnstown, PA 15905, USA

Received 30 September 2013; received in revised form 21 December 2013; accepted 25 January 2014

KEYWORDS

Streptococcus agalactiae;
Group B streptococcus;
GBS;
Infective endocarditis;
Vegetation

Summary *Streptococcus agalactiae* (*S. agalactiae*), also referred as group B streptococcus (GBS), is an important pathogen in neonates and a rare cause of invasive infection in adults. It is well known that GBS endocarditis is a virulent infection that can cause serious complications. The overall mortality rate remains high despite surgical treatment. We describe a case of native mitral valve endocarditis caused by GBS in an 86-year-old woman treated medically.

© 2014 King Saud Bin Abdulaziz University for Health Sciences. Published by Elsevier Ltd. All rights reserved.

Case

History

An 86-year-old female presented to our hospital complaining of chills, excessive sweating and a feeling of general sickness that had persisted for two days. The patient did not complain of chest pain, shortness of breath, coughing or headache. Past medical history showed significant degenerative calcific mitral valve disease with moderate mitral regurgitation and endometrial cancer, which was treated with an abdominal surgical resection followed by radiation therapy. Postoperative care was complicated by multiple intra-abdominal abscesses. The patient also had a

prior history of frequent intestinal obstruction and radiation enteritis, which was treated surgically 4 months before the visit.

Physical examination

On admission, the patient had a temperature of 39.1 °C (102.4 °F), a heart rate of 92/min, respiratory rate of 20/min, blood pressure of 120/80 mmHg and oxygen saturation of 97% in room air. Heart auscultation revealed a holosystolic murmur at the cardiac apex radiating to the left axilla.

Investigations

Laboratory studies revealed a white blood cell count of 13,000/mm³ with 88% neutrophils and 7% bands. The erythrocyte sedimentation rate was 36 mm/h, troponin 0.22 ng/ml and lactic acid 1.5 mmol/l. Two blood cultures were drawn from two different sites 30 min apart followed by empiric

* Corresponding author at: Conemaugh Memorial Medical Center, E3 Building, 1086 Franklin Street, Johnstown, PA 15905, USA. Fax: +1 814 534 3290.

E-mail address: mabdelgh@conemaugh.org (M. Abdelghany).

treatment with ceftriaxone 1 g IV and azithromycin 500 mg IV. EKG showed a normal sinus rhythm. On the first day of admission, the two blood cultures were positive for gram-positive cocci, suggesting streptococcus. On the second day of hospitalization, GBS was identified and found to be penicillin-sensitive, and the patient was switched to penicillin G. No further characterization of this GBS was performed. Transthoracic echocardiography (TTE) showed a mobile valvular vegetation on the posterior mitral leaflet measuring 2.0 cm in size and increased severity of mitral regurgitation compared with an echocardiogram performed 4 months earlier. A CT scan of the head did not show any acute intracranial abnormalities.

Diagnosis

The patient fulfilled the diagnosis of definite endocarditis with one major criterion (abnormal echocardiogram) and two minor criteria (body temperature higher than 38 °C and predisposing heart condition).

Treatment

Antibiotic therapy combined with mitral valve replacement was recommended to the patient. However, the patient refused and requested medical treatment alone. A transthoracic echocardiogram performed again on the fifth day of hospitalization showed that the vegetation had increased in size to 2.15 cm. A peripherally inserted central catheter (PICC) line was placed and the patient was treated with IV penicillin G for 4 weeks. The patient completed the four-week course of penicillin uneventfully without any complication. The patient continued to be asymptomatic 9 months after treatment.

Discussion

Streptococcus agalactiae is a rare cause of endocarditis in adults [1]. Diabetes mellitus, malignancy, HIV infection, alcoholism, cardiovascular disease and advanced hepatic and renal disease have been identified as risk factors for GBS endocarditis [2–4]. Transesophageal echocardiography is more sensitive than transthoracic echocardiography and is the preferred approach when transthoracic imaging windows are limited [5]. GBS infective endocarditis may be complicated by major emboli [2,6]. The development of emboli was observed in 50% of patients in one series, most commonly in the brain (7 patients; 23%) [3]. The frequency of emboli

probably relates to the large size and the friability of the vegetations, which appear to be characteristics of group B streptococcus endocarditis [1]. The case fatality rate of invasive GBS infections among adults was estimated to be approximately 14% [4,7]. Penicillin G remains the drug of choice for such conditions. It is unclear whether the addition of gentamicin during the first two weeks of therapy is necessary [1]. Vancomycin remains the initial treatment of choice for GBS infection in patients who are allergic to penicillin. Because of the severity of the *S. agalactiae* infection, several authors recommend both early medical and surgical treatment [1,8]. Siciliano et al. [8] reported better outcomes with surgical treatment within the first week of endocarditis diagnosis. However, favorable outcomes have also been described after conservative medical treatment with antibiotics alone [9,10]. Although our patient was an obvious candidate for surgical treatment due to the size of the vegetation and worsening mitral regurgitation, she refused any surgical intervention.

Summary

GBS endocarditis is an invasive infection that has been increasingly reported recently. It is evident that group B streptococcus endocarditis is a virulent disease compared with endocarditis caused by other streptococci and is as virulent as *Staphylococcus aureus* [1]. Complications such as embolization, particularly in the brain, heart failure and significant mortality have been reported [7]. Antibiotic therapy combined with surgery has been recommended by many authors. However, other reported cases were successfully managed with medical treatment alone. We presented a case of GBS of native mitral valve endocarditis in an old immunocompromised patient who was successfully treated medically with antibiotic therapy.

Conflict of interest

Funding: No funding sources.

Competing interests: None declared.

Ethical approval: Not required.

References

- [1] Rollán MJ, San Román JA, Vilacosta I, Sarriá C, López J, Acuña M, et al. Clinical profile of *Streptococcus agalactiae* native valve endocarditis. *Am Heart J* 2003;146(6):1095–8.
- [2] Chang M, Cunha BA. *Streptococcus agalactiae* (Group B streptococcus) infective endocarditis complicated by

- myocardial abscess and heart block. *Infect Dis Clin Pract* 2004;12(2):107–9.
- [3] Sambola A, Miro JM, Tornos MP, Almirante B, Moreno-Torrico A, Gurgui M, et al. *Streptococcus agalactiae* infective endocarditis: analysis of 30 cases and review of the literature, 1962–1998. *Clin Infect Dis* 2002;34(12):1576–84.
- [4] Skoff TH, Farley MM, Petit S, Craig AS, Schaffner W, Gershman K, et al. Increasing burden of invasive group B streptococcal disease in nonpregnant adults, 1990–2007. *Clin Infect Dis* 2009;49(1):85–92.
- [5] Paterick TE, Paterick TJ, Nishimura RA, Steckelberg JM. Complexity and subtlety of infective endocarditis. *Mayo Clin Proc* 2007;82(5):615–21.
- [6] Mylonakis E, Calderwood SB. Infective endocarditis in adults. *N Engl J Med* 2001;345(18):1318–30.
- [7] Edwards MS, Baker CJ. Group B streptococcal infections in elderly adults. *Clin Infect Dis* 2005;41(6):839–47.
- [8] Siciliano RF, Cais DP, Navarro RC, Strabelli TM. Acute *Streptococcus agalactiae* endocarditis: outcomes of early surgical treatment. *Heart Lung* 2010;39(4):331–4.
- [9] Cappelli F, Ermini FR, Del Pace S, Micheli S, Gensini GF. Favourable outcome of *Streptococcus agalactiae* prosthetic valve endocarditis after conservative treatment. *Int J Cardiol* 2007;114(2):E73–4.
- [10] Backes RJ, Wilson WR, Geraci JE. Group B streptococcal infective endocarditis. *Arch Intern Med* 1985;145(4):693–6.

Available online at www.sciencedirect.com

ScienceDirect