

Calcific constrictive pericarditis

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A 40-year-old man suffered from gradually worsening dyspnea and swollen ankles for six months prior to his evaluation. He underwent a chest X-ray, lung function tests, a 24-hour Holter heart rhythm monitoring, and a polysomnography study. A working diagnosis of sleep apnea syndrome was made in another institution and the patient was advised to use a continuous positive airway pressure (CPAP) mask. With the use of the mask, his symptomatology got worse: he had severe dyspnea at rest and leg edema, which was extending up to the knees. He also noticed an increased abdominal girth. The patient was assessed by a cardiologist in his hometown who performed a Doppler echocardiography and diagnosed a thrombus of the right ventricle and an abnormally moving intraventricular septum. These findings prompted an emergency referral to the hospital.

On physical examination the patient was hemodynamically unstable with a blood pressure of 90/65 mmHg, pulse rate 105 per minute, respiratory rate 25 per minute, and temperature 38,2 0 C. He was severely dyspneic at rest and was mildly obese (Body Mass Index of 27,75). The first and second heart sounds were normal but there was a pericardial knock. Pulsus paradoxus was present as well. There were few crackles of the lung fields up to the midzone. Abdominal examination revealed splenomegaly and signs of free peritoneal fluid. He had edema of the legs up to the level of the knees.

An initial workup revealed the presence of mild anemia (Ht: 37.6%), an increased erythrocyte sedimentation rate (ESR = 50 mm at the first hour), an elevated C-reactive protein (CRP = 16.36 mg/dl with upper normal limits: 0.5 mg/dl) and decreased serum albumin levels (2.7 gr/dl). Measurement of other routine biochemical parameters was normal. Tuberculin skin testing was negative. An electrocardiogram showed decreased voltage. Imaging included a chest X-ray which showed calcification of the pericardium and a small left pleural effusion, and an echocardiogram which showed a localized pericardial effusion causing tamponade of the right ventricle and calcification of a thickened pericardium. A CT scan of the chest is shown in Figure 1.

A 29-year-old female patient presented initially with symptoms of stress urinary incontinence occurring several times every day, for 4 years. She also reported symptoms of urgency and urge urinary incontinence and pelvic dragging. In the past she had 2 uncomplicated spontaneous vaginal deliveries and she suffered from asthma that was well controlled by medical treatment (bronchodilators by inhalation).

Physical examination revealed a moderate cystocele with paravaginal defects, a small rectocele, and a first-degree uterine prolapse. Urodynamic investigation showed urodynamic stress incontinence. As previous conservative treatment with pelvic floor exercises and physiotherapy had failed, she underwent a Burch colposuspension. The procedure and the recovery were uneventful and the stress urinary incontinence was cured.

Ten months after surgery the patient reported increasing pelvic dragging sensation. Clinical examination revealed a moderate rectoenterocele and 1st-2nd degree of uterine prolapse with an elongated cervix and a small high cystocele. The patient underwent a Manchester procedure with repair of cystocele using a polypropylene mesh (Prolene). The uterus was also suspended by the posterior IVS (intravaginal slingplasty) technique. Pelvic organ prolapse symptoms were subsided.

However, the patient noted an offensive vaginal discharge 3 months after the second operation and she reported an episode of light vaginal bleeding. Examination revealed a large mesh erosion of the anterior vaginal wall (2x3cm) (Figure 1) and 2 small erosions of the IVS tape on the posterior vaginal wall. The uterus and the vaginal walls were well supported.

Differential diagnosis

For most clinicians the presence of calcific constrictive pericarditis (Figure 2) elicits a reflex diagnosis of either idiopathic or tuberculous pericarditis. Differential diagnosis also includes neoplastic, pyogenic, rheumatic, postradiation, and uremic pericarditis.

Diagnosis

Examination of the pericardial fluid revealed: increased number of cells (3820 cells/cubic mm with lymphocytes: 80% and polymorphonuclear: 20%), total protein: 3,5 gr/dl, significantly increased LDH levels: 1619 IU/l, and markedly decreased glucose levels: 9 mg/dl. Antinuclear antibodies and rheumatoid factor were negative. Lysozyme and adenosine deaminase (ADA) in the pericardial fluid were normal. Polymerase chain reaction testing in the pericardial fluid for Mycobacterium tuberculosis was negative. Gram and Ziehl-Neelsen stains were negative both in the pericardial fluid and the pericardium. Cytological examination of the pericardial fluid showed many inflammatory cells and no malignant cells. Cultures of the pericardial fluid (three separate samples) grew Streptococcus salivarius. Culture of the pericardium (one sample) grew the same microorganism. Histologic examination of pericardial tissue showed increased thickening with dystrophic calcification of the superficial layer, as well as inflammatory infiltration with lymphocytes and plasmacytes of

the deeper layer (Figure 3).

The diagnosis was bacterial pericarditis due to *Streptococcus salivarius*.

Therapy

The patient underwent an urgent surgical removal of the pericardial effusion and the parietal layer of the pericardium. The surgical penetration of the wall led to the removal of 200 cc pericardial fluid. The heart was covered all around by a synthetic membrane, the heart-wrapp, which has been developed to prevent the creation of post-operate adhesions in. Our patient also received intravenous vancomycin and ceftriaxone for four weeks. He gradually recovered.

Teaching points

- *Streptococcus salivarius* belongs to the α hemolytic streptococci, which are part of the normal flora of the mouth.
- *Streptococcus salivarius* has been mainly associated with meningitis (after spinal or epidural anesthesia in the majority of cases) and bacteremia. Bacteremia due to *Streptococcus salivarius* is favoured by manipulations of the upper gastrointestinal tract such as endoscopy and by the presence of neoplasia.

References

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Acknowledgments

- The full version of this case report with a review of the relevant literature will be published in the journal "Cardiology in Review". Rafailidis PI, Prapas SN, Kasiakou SK, Costeas XF, Falagas ME. Effusive-constrictive calcific pericarditis associated with *Streptococcus salivarius*: case report and review of the literature. *Cardiology in Review* 2004 (in print).
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Questions-Comments

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