

Case report

Streptococcus gallolyticus: a new name for a well-known old organism

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We report a case of *S. gallolyticus* native valve endocarditis and spondylodiscitis in an 84-year old patient who finally died of an intracranial hemorrhage caused by an acute leukemia. We make a literature review, emphasizing the relative lack of references about *S. gallolyticus* in medical literature, and the need of updating the laboratory identification systems and clinicians work-up after the taxonomic changes for the so-called *S. bovis*.

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■ A medical database and literature checking process is carried out related to a *gallolyticus* infective endocarditis case.

Case:

The primary health system doctor sent an 84-year-old woman to the emergency room of our hospital when along one month the Hb level dropped from 11.3 g to 9.9 g. The patient followed an ibuprofen treatment since she had lumbalgy with two-week-increasing-mechanical characteristics. No other symptoms, neither digestive disorder, fever, nor dyspnea or throbbing were reported. She suffered from hyporexia disorder.

The patient suffer from essential tremor, high blood pressure, moderate aortic failure and chronic auricular fibrillation. Three years earlier, she had suffered from a transitory phase of an isquemic accident of the left hemisphery and a inferior digestive bleeding due to a possible diverticulosis illness. The patient followed a treatment with 12-hour 300 mg/day fenobarbital-, acenocumarol-amiodarona- treatment and a 20 mg/day Omeprazol.

During the physical exploration made before being sent to hospital, she was conscious and well-oriented, eupneic, normal coloured and in a good general health state. Constants were blood pressure of 141/72 mmHg with heart rate of 56 bpm,

temperature of 36°C and pulse oximetry of 91%. Cardiopulmonary auscultation was normal; abdomen was tender, depressible, without palpating mass or megalia, no edema; rectal touch reveals no bleeding signs.

Once admission to the hospital, following complementary test were carried out:

- Hemogram: Hematite 2.67 10E6/μl, Hemoglobin 8.9 g/dl, Hematocrit 26.6 %, MCV 99.7, Leucocit 5.3 10E3/μl, Neutrohpils 61.9 %, Lymphocytes 26.3 %, Monocytes 11.0 %, Eosinophils 0.6 %, Basophils 0.2 %.
- Basic Biochemistry, cardiac enzymes and normal troponin I.
- Coagulation study: prothrombin activity 20 % INR 3.07- the rest were normal.
- Rx thoracic PA and lateral: cardiomegaly and ascending aorta.

During the hospital stay, complementary test were carried out which proved:

- Ferritin 152, transferrin 140, TSI 21%, Fe 42, GSS 120, LDH 225, Total proteins 5.7g/dl, Albumin 2.6g/dl, Calcium 8.0mg/dl, gamma-glutamyltransferase 164U/l, LDH 225U/l, Proteine C reactiv 7.2.
- Systematic urine analysis with moderate piuria, negative nitrite, growing in flora uroculture polymicrobial.
- Lumbar spine radiogoly: osteopeny, severe degenerative changes with no evident cervical crushing.
- Normal abdominal ecography.

48-hour period after being admitted to hospital, he showed fever of 38°, removing hemocultures and uroculture, starting a ciprofloxacin iv treatment. 24-hour period after the fever gram-positive cocci were observed in hemocultures, so 2g iv cloxacilin was associated each 6h-time. A transthoracic echocardiogram with severe aortic insufficiency with conservative eyection fraction was made (67%), and moderated mitral incompetence. Later, a transesophafic echocardiogram was carried out. It showed in the ventricular aspect of the left coronary veil a 3 x 3 mm mobile image corresponding to a vegetation.

Streptococcus gallolyticus was identified in the microbiology laboratory as the microorganism which grows in the hemocultures (sensible to Penicilina, betalactamics, ciprofloxacin, vancomycin and macrolids). With the *S. gallolyticus* endocarditis diagnosis on native aortic valve, treatment was changed to iv penicillin 4-million U /4h and gentamicin 1mg/kg / 8h.

A nuclear magnetic resonance was carried out in which a marked alteration in the intensity of disc signal D12-L1 with height loss, loss in the alteration of the signs of vertebral saucer adjacent to the disc and intense uptake at disc and vertebral sources contrast, which are characteristic of infectious spondylodiscitis.

After following a 72-h tratment the patient did not have fever anymore. A 2-week gentamicin treatment and a 6-week iv penicillin treatment was carried out, followed later by a 4-week oral ciprofloxacin and rifampicin treatment. A control echocardiogram after following a 4-week treatment caused the disappearance of the aortic wart valve. Once the clinical stability was obtained, a colonoscopy was carried out, in which a 8-mm and a 12-mm pediculated polyp in the sigma were observed in descending colon, and they were removed. The anatomopatologic study was released as hairy tubular adenomas with low degrees of dysplasia.

Four months after being discharged from hospital, in a control hemogram, a new anemization and thrombopeny were detected with a 5% presence of look like myeloid blasts in the smear. After a bone marrow biopsy a mielodisplasic syndrome RAEB-1 type (refractory anemia with excess of

blasts-1). Two months later the patient suffered from a significant increase of blastic precursors (up to 69% of periferic blood), being diagnosed with secondary acute leukemia, so a 6-MP and periodical transfusion treatment was carried out. Finally the conscious level decreased due to a left-side subudural hematoma with an important effect of mass in the cranial CT Scan. Palliative measures were given and the patient died four days after being sent to hospital.

Discussion

Just 50 references were found when doing the 21th of November 2008 a bibliographic *Streptococcus gallolyticus* search in the main medical database (Pubmed). Among them, some emphasizes the confusion created by taxonomic changes in the daily patients handling [1]. In Up to Date, one of the most used resources, when searching *S. gallolyticus* we are directly referred to *Streptococcus bovis*, a relatively frequent cause of endocardities and bacteremia in adults, traditionally known by its association with colon neoplasia related illness [2].

The *S. bovis* express the D antigen of Lancefield (so initially it was classified together with *Enterococcus* spp); it was later divided into biotype I (*S. Bovis*) and biotype II (variant *S. bovis*) being differentiated due to biochemical differences. Since 2003, based on DNA studies, the *S. bovis* group was reclassified: the name *S. gallolyticus* is changed to *S. bovis* biotype I [3].

S. gallolyticus is a streptococcus found in ruminants and it provokes infections in pigeons; it is found in 2-10% healthy human feces. *S bovis* is also found between the 2-6% of the isolation of streptococcus in patients admitted to hospitals and between 2.4 to 25% of isolation of infective endocarditis. *S. bovis* proportion among streptococcus endocarditis presents high geographical variability. It causes 25% of endocarditis in France, against 9% in the rest of Europe and 6% in the USA (in 1990, patients who suffer from *S. bovis* endocarditis are elderly people -80% of people are more than 50 years old-). Generally speaking, it frequently provokes left endocarditis and it usually affects several valves, producing bigger vegetations than other etiologies [4]. Between 43-72% patients did not have previously known structural cardiopathy. Frequency of embolic phenomenal is higher than other pathologies, especially in discitis, which can be its clinical presentation.

S. Bovis endocarditis-associated mortality is between 2-18% [4]. Referring to neoplasia association, in a research on *S. Bovis* bacteremia, colonic neoplasia was found in 16-32% of the cases [2]. Colonic polyp can also be found in 47% of the cases, according to the types, predominating over biotypes I. Intestinal pathology should be ruled out in patients who suffer from *S. gallolyticus* bacteremia. There is also in medical literature references to *S. Bovis* association with other neoplasias in different types, including hemathologic ones [5].

Referring to its treatment, *S. bovis* is very sensitive to penicillin and to several antimicrobians [6], so the

predominant treatment is usually G Penicillin, initially associated with gentamicin or estreptomycin. Other possibility could be Ceftriaxone in one daily doses associated to gentamicin. Those patients who are allergic to betalactamics, the antimicrobial vancomycin is used.

According with the bacterial identification system the majority of the *S. gallolyticus* obtained in microbiology laboratories would be classified as biotype I *S. Bovis*. This would be the case of API (bioMérieux, France), one of the most worldwide-used bacterial identification methods [7]. There are other automated bacterial identification systems as Vitek 2 (bioMérieux, France) and MicroScan (Dade, USA), which have added the *S. Bovis* taxonomic change to its database. Since microorganism nomenclature changes are slowly incorporated to the microbiology laboratories routine, confusing situations can be created. The identification systems regularly used in microbiology laboratories should frequently update its databases in order to introduce the generated taxonomic changes. On the other hand, such changes are not early move to the medical literature, nor be assimilated by clinics, which is not always easy due to the speed those changes are carried out.

It has been suggested that when a *S. gallolyticus* is identified, the current and the previous microorganism name should be indicated in order to avoid the omission of relevant diagnostic test, according with the frequent association with underlying neoplasias [1]. ■

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