

Case Report

Appendicular Abscess to *Streptococcus constellatus* : Case Report**Sara Figuigui*, Imane Benbella, Amal Taghouti, Ghizlane Zoulati, Zineb Amhaouch, Ghita Yahyaoui, Mustapha Mahmoud**

Laboratory of Medical Analysis, Department of Microbiology , Hassan II Hospital of Fez, Morocco

***Corresponding Author:**

Sara Figuigui

Email: figuiguisara@gmail.com

Abstract: *Streptococcus constellatus* is a germ that belongs to the *Streptococcus milleri* group, it has a particular tropism for the digestive tract and the hepatobiliary region. It is found in deep abscesses in immunocompromised patients. 70-year-old patient admitted to the emergency room for a pain in the right iliac fossa. The abdominal scan showed a retro cecal collection probably related to an appendicular abscess. The cytobacteriological study of abscess sampling in peroperatively demonstrated the presence of *Streptococcus constellatus* associated with *Escherichia coli*. The identification of a *streptococcus* of the milleri group is difficult by ordinary methods and must make search for an abscess.

Keywords: *Streptococcus constellatus*, milleri group, appendicular abscess, immunodepression

INTRODUCTION

Streptococcus constellatus (*S. constellatus*) is a *streptococcus* of the milleri group of which *streptococcus anginosus* (*S. anginosus*) and *streptococcus intermedius* (*S. intermedius*) [1] belong. It is a commensal germ that has a particular tropism for the digestive tract and the hepatobiliary region. It may be responsible for deep abscesses, especially in immunocompromised patients (diabetics, cirrhotic patients, chronic liver disease and neoplasia [2, 3].

Acknowledging the difficulties of identifying this germ, our observation is of great interest in presenting a case of an appendicular abscess to *Streptococcus constellatus* in a 70-year-old adult.

OBSERVATION

This is a 70-year-old woman with a history of diabetes and poorly followed hypertension, obese. The history of the disease dates back to a month before its admission by the installation of the pains of the right iliac fossa becoming diffuse associated with an unquantified fever, The symptomatology dates back to 05 days before its admission by an occlusi syndrome, admitted to Emergencies: Glasgow coma scale at 15, hemodynamically stable. Clinical examination found generalized abdominal tenderness with distended abdomen. Cardiopulmonary auscultation demonstrated a bilateral basithoracic condensation syndrome, the remainder of the somatic examination was unusual. The blood balance showed normocytic normocytic anemia

at 10.3 g / dL, 42 G / L predominantly neutrophilic leukocytosis at 27.7 G / L, a normal platelet count at 37.7 G / L, prothrombin 83%, a reactive protein of 340 mg / l with renal insufficiency with 0.64 g / l of urea and 14.7 mg / l of creatinine, 130 mmol / l hypernatraemia and 3.4 mmol / l serum potassium.

The unprepared abdomen showed hydroelectric hail types. X-ray of the thorax showed focal foci of bilateral basithoracic atelectasis. The electrocardiogram showed a regular sinus rhythm without electrical troubles. The abdominal scan showed a retro cecal collection probably related to an appendicular abscess or a tumor mass.

Admitted to the Operating room of emergency, the gesture lasted 2 hours , in the exploitation we founded: appendix retro caecale and presence of false membranes therefore realization of an appendectomy and placing under Triaxone, Flagyl®. The bacteriological cyto examination of the pus taken from the peritoneal abscess showed the presence of *Escherichia coli* and *Streptococcus constellatus*. The identification was based on the appearance of alpha hemolytic colonies and Phoenix Becton Dickinson (BD). The antibiogram was performed on Phoenix BD and was monitored by Muller Hinton media diffusion technique with 5 % Of blood (bioMerieux) according to the standards of the CA-SFM (Antibiogram Committee of the French Microbiology Society). Our strain was sensitive to beta-lactams, quinolones, glycopeptides,

lincosamides and streptogramins and resistant to sulfamethoxazole.

The patient's prognosis was transformed by the appropriate management in post-operative resuscitation: drainage and intraperitoneal lavage in combination with prolonged intravenous antibiotic therapy.

DISCUSSION

The *Streptococcus milleri* group (SMG) has known a variety of names [4]. In the past, it was considered a single species that is slightly synonymous with *S. anginosus* [5]. The SMG organisms are now separated into three distinct species: *Streptococcus intermedius*, *Streptococcus constellatus* and *Streptococcus anginosus*; *S. constellatus* and *S. intermedius* are more closely related than *S. anginosus* [6-8]. Their phylogeny was studied by comparing the sequences of the 16S rRNA gene [1]. However, since many phenotypic tests for the characterization of these species give similar results, identification of isolates may be difficult.

They are aeroanaerobic germs, their growth gives a caramel odor on agar media and is stimulated by carbon dioxide. This may explain why certain strains can be confused with strictly anaerobic germs for technical reasons.

These bacteria are frequently responsible for cerebral abscesses secondary to local trauma or infection, myocardial, hepatic and splenic. The reasons for their ability to form abscesses remain unknown [9-13].

A study by Clarridge *et al.* [9] Out of 114 *S. milleri* isolates showed that *S. anginosus* was the most frequently found. Followed by *S. constellatus* and *S. intermedius*. A similar distribution was found in Bert [14] and Jacobs [15] studies of *Streptococcus* bacteremias of the milleri group. 100% of *S. anginosus*, 70% of *S. constellatus* and 19% of *S. intermedius* were associated with cerebral, pulmonary or other abscesses.

Concerning the preferred site of infection related to each species, *S. anginosus* was most often associated with infections of the gastrointestinal and urogenital tract, *S. intermedius* associated with meningitis or respiratory infections and *S. constellatus* with hepatobiliary infections, [9]. The majority of these patients had a predisposing terrain, including underlying immunosuppression (neoplasia, cirrhosis, diabetes) [14-16].

For our patient, the intestinal portal played a major role in the formation of this abscess of appendicular origin to *S. constellatus*. Diabetes and high blood pressure two chronic diseases have been aggravating elements.

Culture is rarely pure outside blood cultures. The review by Clarridge *et al.* [9] Found *S. intermedius* to be mostly isolated as a single flora, unlike other milleri streptococci, *S. constellatus* or *S. anginosus* (83, 22 and 0%, $p < 0.001$). Another study by Bert *et al.* [14] Has recovered polymicrobialism in almost half of the cases. These were mainly enterobacteriaceae and anaerobes. Isolated copathogens depend essentially on the site of collection, such as anaerobes, *staphylococci*, or the like. Anaerobes must always be taken into account when the digestive tract is incriminated, which explains the antibiotic therapy initiated in our patient.

Indeed, the culture of abscess sampling revealed an association of *S. constellatus* with *Escherichia coli* and the patient was placed well before the results of the triaxone antibiogram associated with flagyl.

Milleri streptococci are usually resistant to sulfamethoxazole and bacitracin and are usually susceptible to betalactams [17,18].

The prognosis of streptococcal infections of the milleri group is variable and depends on the location of the abscess and the underlying site.

CONCLUSION

The identification of *Streptococcus Constellatus* is difficult and cannot be obtained with ordinary methods of identification, although it is commensal to the intestinal tract, it must be considered pathogenic when isolated in the abscessed collections or in the blood. The prognosis depends on the location of the abscess and the underlying site. Antibiotic therapy should take into account the frequency of polymicrobialism in this type of infection and should include a beta-lactam associated with metronidazole intravenously.

REFERENCES

1. Jacobs, J. A., Schouls, L. M., & Whiley, R. A. (2000). DNA-DNA reassociation studies of *Streptococcus oostellatus* with unusual 16SrRNA sequences. *Int J Syst Evol Microbiol*, 50, 247-249.
2. Bert, F., Bariou-Lancelin, M., & Lambert-Zechovsky, N. (1998). Clinical significance of bacteremia involving the "*Streptococcus milleri*" group: 51 cases and review. *Clin Infect Dis*, 27, 385-387.
3. Jacobs, J. A., Pietersen, H. G., Stobberingh, E. E., & Soeters, P. B. (1994). Bacteremia involving "the *Streptococcus milleri*" group: analysis of 19 cases. *Clin Infect Dis*, 19, 704-713.
4. Ruoff, K. L. (1988). *Streptococcus anginosus* ("*Streptococcus milleri*"): the unrecognized pathogen. *Clin Microbiol Rev*, 1, 102-8.

5. Coykendall, A. L., Wesbecher, P. M., & Gustafson, K. B. (1987). "Streptococcus milleri," Streptococcus constellatus, and Streptococcus intermedius are later synonyms of Streptococcus anginosus. *Int J Syst Bacteriol*, 37, 222-8.
6. Clarridge, J. E., Osting, C., Jalali, M., Osborne, J., & Waddington, M. (1999). Genotypic and phenotypic characterization of "Streptococcus milleri group" isolates from a Veterans Administration hospital population. *J Clin Microbiol*, 37, 3681-7.
7. Whiley, R. A., & Beighton, D. (1991). Emended descriptions and recognition of Streptococcus constellatus, Streptococcus intermedius, and Streptococcus anginosus distinct species. *Int J Syst Bacteriol*, 41,1-5.
8. Whiley, R. A., Frazer, H., Hardie, J. M., & Beighton. (1990). Phenotypic differentiation of Streptococcus intermedius, Streptococcus constellatus, and Streptococcus angiosus strains within the Streptococcus milleri group. *J Clin Microbiol*, 28, 1497-501.
9. Clarridge, J. E., Attori, S., Musher, D. M., Hebert, J., & Dunbar, S. (2001). Streptococcus intermedius, Streptococcus constellatus, and Streptococcus anginosus (Streptococcus milleri Group) are off different clinical importance and are not equally associated with abscess. *Clin Infect Dis*, 32, 1511-1515.
10. Whiley, R. A., Beighton, D., Winstanlay, T. G., Fraser, H. Y., & Hardie, J. M. (1992). Streptococcus intermedius, Streptococcus constellatus, and Streptococcus anginosus (the Streptococcus milleri Group): association with different body sites and clinical infections. *J Clin Microbiol*, 30 (1), 243-244.
11. Marinella, M. A. (1997). Streptococcus constellatus endocarditis presenting as acute embolic stroke. *Clin Infect Dis*, 24 (6), 1271-1272.
12. Passeron, C., Peyrade, F., Taillan, B., Tchiknavorian, X., & Dujardin, P. (1997). Abcès cérébraux à Streptococcus constellatus chez un patient infecté par le VIH. *Presse M*, 26 (24), 1145.
13. Mediavilla Garcia, J. D., Arroyo Nieto, A., Lopez Gomez, M., Cuesta I., & Mateas Ruiz, F. (1997). Massive empyema caused by Steptococcus constellatus . *An Med Interna*, 14 (9), 488-489.
14. Bert, F., Baroi-Lancelin, M., & Lambert-Zechovsky, N. (1998). Clinical significance of bacteria involving the Streptococcus milleri group: 51 cases and review. *Clin Infect Dis*, 27 (2), 385-387.
15. Jacobs, J. A., Pieterse, H. G., Stobberingh, E. E., & Soeters, P. B. (1994). Bacteria involving the Streptococcus milleri group: analysis of 19 cases. *Clin Infect Dis*, 19,704-713.
16. Sanchez-Porto, A., Torres-Tortosa, M., Canueto, J., & Dominguez, M. C. (1997). Bacteremias due to Streptococcus milleri group. An analysis of 18 episodes. *Rev Clin Esp*, 197 (6), 393-397.
17. Tracy, M., Wanahita, A., Shuhatovich, Y., Goldsmith, E. A., Claridge, J. E., & Musher, D. M. (2001). Antibiotic susceptibilities of genetically characterized Steptococcus milleri group strains. *Antimicrob Agents Chemother*, 45 (5), 1511-1514.
18. Aracil, B., Gomez-Garces, J. L., & Alos, J. I. (1999). A study of susceptibility of 100 clinical isolates belonging to the Streptococcus milleri group to 16 cephalosporins. *J Antimicrob Chemother*, 43, 399-402.