**Streptococcus gordonii** Bacteremia in an Infant Following Gastric Surgery

İnfantta Gastrik Cerrahi Sonrası Gelişen *Streptococcus gordonii* Bakteremisi

Zeynep Gökçe Gayretli Aydın¹, Gönül Tanrı¹, Ismet Faruk Özgüner² Gülsüm Iclal Bayhan³, Türkan Aydin Teke³
Fatma Nur Öz⁴, Özge Metin¹

¹Dr. Sami Ulus Maternity and Children’s Research and Education Hospital, Department of Pediatrics, Division of Infectious Diseases, Altındağ, Ankara, Turkey
²Dr. Sami Ulus Maternity and Children’s Research and Education Hospital, Department of Pediatric Surgery, Altındağ, Ankara, Turkey

**ABSTRACT**

*Streptococcus gordonii* is a viridans group streptococci of the *S. sangius* group that is normally a non-pathogenic inhabitant of the oral cavity and occasionally the gastrointestinal tract. *S. gordonii* is well-known for its ability to colonize damaged heart valves and cause bacterial endocarditis, but it rarely causes positive blood cultures in patients that undergo diagnostic procedures involving the gastrointestinal tract, such as sigmoidoscopy and gastroduodenoscopy. Herein we report a 5-month-old patient with bacteremia due to *S. gordonii* following a surgery for malrotation. The source of *S. gordonii* infection was thought to be the malrotation surgery. To the best of our knowledge, the literature does not include any pediatric cases of *S. gordonii* bacteremia following a gastric surgery.

**Key Words:** *Streptococcus gordonii*, bacteremia, gastric surgery

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**INTRODUCTION**

*Streptococcus gordonii* is a viridans group streptococci of the *S. sangius* group that is normally a non-pathogenic inhabitant of the oral cavity and occasionally the gastrointestinal tract (1). *S. gordonii* is a causative agent of dental caries and bacterial endocarditis (2), but it rarely causes positive blood cultures in patients that undergo diagnostic procedures involving the gastrointestinal tract, such as sigmoidoscopy and gastroduodenoscopy (3-4). The literature contains no reports of *S. gordonii* bacteremia following gastric surgery. Herein we report a 5-month-old patient with bacteremia due to *S. gordonii* following a surgery for malrotation; the source of *S. gordonii* infection was thought to be the malrotation surgery.

**CASE REPORT**

The male patient had a normal antenatal history, and was born at term (3.1 kg) via normal vaginal delivery. He cried well post delivery and passed meconium on the first day of life. When he was 15 days old, frequent vomiting, bilious vomiting, and abdominal distention developed. He didn't pass any stool for several days and malrotation was diagnosed at another hospital. An emergency laparotomy and Ladd procedure were performed. Post surgery necrotizing enterocolitis (NEC) developed and the patient again underwent surgery to resect the necrotic areas of the gut and for colostomy. He was then referred to our hospital due to short bowel syndrome, cholestasis, and malnutrition at the age of two months.
Streptococcus sanguis bacteremia and endocarditis were reported in association with colon malignancy adenomas, fiberoptic sigmoidoscopy and gastroduodenoscopy in adult cases. It was suggested that S. sanguis might enter blood via ulcerated bowel lesions (3, 4, 11, 12).

In contrast to these reports indicating that there is a relationship between ulcerated gastrointestinal lesions bacteremia in adults associated with viridans streptococci including S. gordonii, to the best of our knowledge the literature does not include any pediatric cases of S. gordonii bacteremia following gastric surgery. The presented patient had malrotation and volvulus and required urgent surgery at another center. He had early complications of surgery, including NEC, short bowel syndrome, chest distension, and malnutrition. It was reported that these complications occur in as many as 96% of patients. He was surgically treated with double peritoneal and cervical bypass and closure of the perforation. Multiple hospitalizations and surgeries, as in the presented case, have been reported (13). It was thought that S. gordonii bacteremia might have been associated with the requirement for multiple gastric surgeries in the presented patient. Viridans group streptococci might be resistance to penicillins and other beta-lactams in contrast to beta-hemolytic strains. The results of SENTRY Antimicrobial Surveillance Program demonstrated a 100.0% susceptibility to linezolid, teicoplanin, vancomycin, 99.1% to quinupristin/dalfopristin, 92.8% to ceftriaxone, 90.3% to clindamycin, 68.6% to penicillin and 64.5% to erythromycin in viridans streptococci isolates (14).

CONCLUSION

The presented patient’s episode of penicillin sensitive S. gordonii bacteremia was successfully treated with an appropriate antibiotic regimen, but a complicated and prolonged clinical course resulted in death. We thought that S. gordonii bacteremia may have occurred in children as a result of gastric surgery.

Conflict of Interest

No conflict of interest was declared by the authors.

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DISCUSSION

Viridans streptococci are gram-positive bacteria and include the S. anginosus, S. mitis, S. salivarius, S. sanguinis, and S. mutans groups. The S. sanguinis group includes S. gordonii, S. parasanguinis, and S. parafermentans. These organisms are among the early colonizers of the oral cavity, and remain abundant as members of the biofilms that colonize the hard and soft tissues of the mouth throughout life; as such, the most common human diseases associated with viridans group streptococci and oral cavity infections are dental caries and periodontal disease (6). Although viridans group streptococci are usually regarded as low-virulence alpha-hemolytic streptococci that commonly colonize the mouth, gingival tissues, and female genitalia, infection can result in bacteremia and may disseminate to distant sites, both in immunocompromised and immunocompetent patients (7). These bacteria were reported as causative agents of native valve infective endocarditis, septic arthritis, peritonitis especially in elderly adult cases with underlying chronic conditions (8, 9, 10).

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