

Enterobacter cloacae were multi resistant, and these microorganisms may be acquired from the hospital (exogenous), and not affected by traditional prophylaxis drugs. The infection rate of our study was 6%, which correlated with other studies that showed rates ranged from 1.5-5.9%. A common mistake in different studies, and opinions is that the culture, and isolation of anaerobic bacteria was minimal or omitted, whereas when wounds are investigated by appropriate microbiological techniques, anaerobes are found to form a significant proportion of the microbial population in both acute, and chronic wounds.⁶ Due to some anaerobes that are resistant to penicillin, treatment should also include appropriate coverage of those organisms. Surgical management, including drainage, is still the treatment of choice for SSI. The presence of penicillin-resistant anaerobic bacteria, however, such as the *B. fragilis* group, may warrant the administration of appropriate antimicrobial agents, such as clindamycin, cefoxitin, metronidazole, a carbapenem, or a combination of a lactamase inhibitor, and penicillin. In our study, we found that *B. fragilis* (mostly isolated), and other gram negative anaerobic bacilli were shown to be resistant to ampicillin, and cefazolin. Antimicrobial prophylaxis with agents, also effective against anaerobic bacteria (for example, cefoxitin, cefotetan) should be considered, and prospective studies to assess the aerobic, and anaerobic microbiology of postoperative infection are warranted. According to literature data, perioperative prophylaxis can decrease the incidence of wound infection. Cefazolin is the most used agent for surgical prophylaxis in our hospital but can be ineffective against the increasingly common wound pathogens methicillin-resistant *S. aureus*, methicillin-resistant coagulase negative staphylococci, *P. aeruginosa*, and other species of gram-negative rods.

In conclusion, this study highlights the polymicrobial nature of SSI and the importance of anaerobic bacteria in SSI's, at same, time the importance of updating surgery prophylaxis to add a stronger antibiotic that may decrease the multi-resistant bacterial infections like MRSA, and *P. aeruginosa*. This study is focused on the candidal infections that are increasing worldwide.⁷

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References

1. Nichols RL. Postoperative infections in the age of drug-resistant gram-positive bacteria. *Am J Med* 1998; 104: 11-16.
2. Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR. Guideline for prevention of surgical site infection: Centers for Disease Control and Prevention (CDC) Hospital Infection Control practices Advisory Committee. *Am J Infect Control* 1999; 27: 97-134.
3. National Committee on Clinical Laboratory Standards. Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically. 4th ed. Approved standard M7-A4. Villanova PA. NCCLS. 1997.
4. Bowler PG, Duerden BI, Armstrong DG. Wound microbiology and associated approaches to wound management. *Clin Microbiol Rev* 2001; 4: 244-269.
5. Brook I, Frazier EH. The aerobic and anaerobic bacteriology of perirectal abscesses. *J Clin Microbiol* 1997; 35: 2974-2976.
6. Bowler PG, Davies BJ. The microbiology of acute and chronic wounds. *Wounds* 1999; 11: 72-79.
7. Scott KF, William RJ. Epidemiology of nosocomial fungal infections. *Clin Microbiol Rev* 1996; 9: 499-511.

Prevention of restenosis following choanal atresia repair. *Description of new stent*

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Several surgical approaches for the repair of congenital choanal atresia have been described since its first correction by Emmert in 1854.¹ Stents are usually inserted in both nostrils following surgical repair to prevent the occurrence of postoperative stenosis.² However, there is no standard stent used, and all stents have to be fashioned at the time of surgery from soft, and hard materials. However, the most common is the preformed plain endotracheal tube.³ Alternatives to stenting are serial dilation of the choanae once a week for 4-6 weeks, or regular bougienage every 2 months.

There are several problems associated with the current methods of preventing recurrence of stenosis. This may explain the high incidence of restenosis, which may reach 80%. Stents made of polyvinyl chloride (PVC) soften at body temperature, and may collapse under outside pressure.⁴ Repeated anesthetics may unnecessarily subject the newborn to the hazards of anesthesia, and tracheal intubation. Those stents made of rubber or PVC may also induce localized tissue reaction. After the success of using a stent made of reinforced

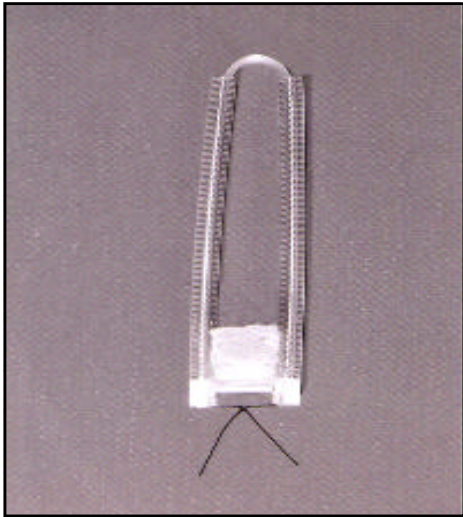


Figure 1 - A prototype of the reinforced silicone rubber tube for the prevention of restenosis following choanal atresia repair.

tracheal tube in an infant who twice previously had surgical repair followed by insertion of a stent fashioned from preformed PVC tracheal tube,⁵ we are introducing this newly designed stent for use after choanal atresia repair.

The newly designed stent (**Figure 1**) is composed of 2 parallel tubes (one for each nostril) made of reinforced silicone rubber. The front part of each tube contains a hole on each side, so that the 4 holes are on the same line. A bridge consists of a hollow tube made of PVC, with a rectangular piece of sponge attached to it, is fixed by a strong thread, which passes through the holes, and the inside of the PVC tube. This is to stabilize the tube in the nostrils. The sponge protects the columella from undue pressure. The 2 tubes are connected posteriorly by a strip made of the same material without any metal reinforcement. Two solid-tipped PVC catheters (one for each tube) are used to position the stent in the nostrils through the mouth. The newly designed stent has several advantages over the available stents presently used following choanal atresia repair. The ready-made stent dramatically shortens the operative time, which is usually spent on fashioning other types of tubes during surgery. The presence of the imbedded metal wire within the wall of the 2 parallel tubes keeps their lumen patent, and makes suction of secretions easier. When inserted following surgery, the metal wire expands at body temperature; instead of collapsing in front of the attempts of the choanae to close again, the reinforced tube stands against the pressure created by restenosis. This spiral metal wire also adds flexibility to the stent easing negotiation of its way during insertion. In addition,

the presence of the attached piece of sponge to the bridge is likely to prevent pressure necrosis of the columella. Finally, this tube is produced from material previously tested, and licensed for use in humans (Z79-IT). This means that its presence in direct contact with mucous membranes for long periods does not initiate inflammatory toxic tissue reaction, which eventually results in scar tissue formation and possible restenosis. The tube sizes are 3, 3.5, 4, 4.5, and 5 mm internal diameter; the smallest size is for the neonate.

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References

1. Emmert C. Stenochorie und Atresie der Choannen, Lehrbuch der speciellen Chirurgie, Vol II, Dann, Stuttgart, 1854. p. 535-538.
2. Gleeson MJ, Hibbert J. A stent for the corrective management of bilateral choanal atresia. *Laryngoscope* 1985; 95: 1409-1410.
3. Liston SL. "How I do it"--head and neck. A targeted problem and its solution. Stenting choanal atresia. *Laryngoscope* 1980; 90: 1061-1062.
4. Evans JNG, Machachlan RF. Choanal atresia. *J Laryngol Otol* 1971; 85: 903-929.
5. Al-Qahtani AS, Messahel FMA. Choanal atresia repair: The use of reinforced silicone tube to prevent restenosis. *Rhinology* 2003; 41: 53-54.

Efficacy of endorectal ultrasonography in preoperative staging of rectal carcinoma

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The most important factor in deciding on the surgical approach in patients with rectal cancer is the tumor stage.¹ Local excision with curative intent, and subsequent prevention of permanent colostomy, could be performed for early rectal cancers (T₁N₀ and T₂N₀) that are less than 4 cm in diameter, those that involve less than 40% of the rectal wall circumference, and are located within 6 cm of the anal verge, with no evidence of nodal disease on preoperative evaluations (for example endorectal sonography).² Endoluminal ultra-