Journal of Pediatric Surgery (2005) **40**, 670–673

ELSEVIER

Journal of Pediatric Surgery

www.elsevier.com/locate/jpedsurg

Should an infected Nuss bar be removed?

Katrien M. Van Renterghem[a], Silvester von Bismarck[c], Nikolaas M.A. Bax[a,*], Andre Fleer[b], Michael E. Höllwarth[c]

[a]*Department of Pediatric Surgery, Wilhelmina Children's Hospital, University Medical Center, PO Box 85090, 3508AB Utrecht, The Netherlands*
[b]*Department of Microbiology, University Medical Center, Utrecht, The Netherlands*
[c]*Department of Pediatric Surgery, University Medical Center, Graz, Austria*

Index words:
Pectus excavatum;
Nuss procedure;
Bar infection

Abstract
Background: The Nuss procedure is a minimally invasive procedure for correction of pectus excavatum. It involves insertion of a substernal metal bar. A feared complication of any implanted device is infection, which often necessitates removal. The purpose of this report is to describe the authors' experience with infectious complications after the Nuss procedure.
Methods: From February 2000 to July 2002, 102 patients underwent the Nuss procedure in 2 pediatric surgical centers. In a retrospective way, the files of those patients in whom a postoperative infection developed were studied.
Results: Seven patients suffered postoperative infectious complications. Only one bar needed to be removed.
Conclusion: The authors' experience indicates that there is no need for immediate removal of an infected Nuss bar. Most of these infections can be managed conservatively. However, early antibiotic treatment is warranted to ensure salvage of the bar.
© 2005 Elsevier Inc. All rights reserved.

In 1998, the Nuss procedure [1] was introduced as a minimally invasive alternative to the standard open Ravitch technique for the correction of pectus excavatum. This technique gained easily popularity because of its apparent simplicity and good results [3,4]. As with any new operation, a number of problems have been reported [1-6]. A much dreaded complication of any implanted device is infection, which often necessitates removal, particularly when infected by *Staphylococcus aureus*, gram-negative bacilli, and *Candida* sp [7].

1. Materials and methods

From February 2000 to July 2002, 102 patients underwent a pectus excavatum correction according to the Nuss method in 2 pediatric surgical departments. The bar was inserted under thoracoscopic control in all patients. Antibiotic prophylaxis (amoxicillin/clavulanate or cefuroxim) was given to all patients. Seven (6.8%) patients developed a postoperative infection. Their postoperative course is described in the following case reports.

1.1. Case 1

This 7-year-old boy went home on postoperative day (POD) 6 after an uneventful postoperative course. On POD 8, he had fever (39.3°C) and showed inflammation of both

* Corresponding author. Tel.: +31 30 2504004; fax: +31 30 2505348.
E-mail address: n.bax@wkz.azu.nl (N.M.A. Bax).

0022-3468/05/4004-0011$30.00/0 © 2005 Elsevier Inc. All rights reserved.
doi:10.1016/j.jpedsurg.2004.12.005

thoracic wounds without drainage. Oral antibiotics were started (amoxicillin/clavulanate). Despite antibiotic treatment, fever persisted the next 2 days and pus drained from the left thoracic wound. For this reason, he was rehospitalized on POD 10 and intravenous broad spectrum antibiotics (amoxicillin/clavulanate and gentamycin) were started. At that moment, he had a white cell count of 16,000/μL and a C-reactive protein (CRP) of 157 mg/L. Culture of the pus yielded methicillin-sensitive *S aureus* and on POD 14, antibiotics were switched to flucloxacillin. A 14-day course of intravenous antibiotics was completed. Fever disappeared, drainage of pus stopped, and inflammatory parameters normalized during hospitalization. He was discharged on POD 24. At that moment, the left thoracic wound again showed some drainage. Flucloxacillin was continued orally for another 4 weeks. The left thoracic wound eventually healed. Since that time he did not have any infection anymore. At 1 year postoperatively, the stabilizer of the bar was removed because of displacement. At 2 years the bar is still in place but will be removed after another year.

1.2. Case 2

This 15-year-old adolescent boy developed some serous drainage from the right thoracic incision on POD 4. Oral antibiotic treatment (amoxicillin/clavulanate) was started on an outpatient basis. Culture of the fluid yielded methicillin-sensitive *S aureus*. Antibiotic treatment was continued for 3 weeks. Drainage halted and the thoracic incision healed. Three months postoperatively, he is doing well, without any further infectious complications and the bar is still in place.

1.3. Case 3

This 17-year-old adolescent boy was discharged home on POD 5. On POD 9, he showed erythema of the left thoracic wound without drainage. C-reactive protein was 48 mg/L and white cell count 28,000/μL. Oral antibiotic treatment (amoxicillin/clavulanate) was initiated. At POD 11, he was rehospitalized with fever, general malaise, retrosternal pain, and drainage of pus from both thoracic wounds. On the left side, one of the extremities of the metal bar was visible in the open wound. The CRP had risen to 340 mg/L and white cell count was 17,300/μL. Intravenous antibiotic therapy (flucloxacillin and clindamycin) was started. An ultrasound ruled out endo- and/or pericarditis. Chest x-ray showed normal lungs and no pleural fluid. From the pus, methicillin-sensitive *S aureus* was isolated. Flucloxacillin was continued as monotherapy for another 10 days. He was discharged on POD 19 with flucloxacillin orally. C-reactive protein was 17 mg/L and white cell count was 14,400/μL. On POD 21 he was rehospitalized because of severe retrosternal pain requiring intravenous morphine. At the some time, antibiotics were again administered intravenously. He was finally discharged on POD 34. Antibiotics were continued for another 2 weeks orally, so in total he completed a 6-week course of antibiotic treatment. At follow-up 1 month later, the thoracic wounds were healed without signs of infection and he was doing well. At 6 months postoperatively, the bar is still in place and the patient is doing well.

1.4. Case 4

On POD 5, this 16-year-old adolescent boy developed fever (38.5°C). Clinical examination was unremarkable. At that moment, his CRP was 420 mg/L and white cell count 12,000/μL. Chest x-ray was normal. Under suspicion of a subclinical wound and/or bar infection, intravenous amoxicillin/clavulanate was started. Blood cultures remained sterile. On POD 7, clinical examination did not reveal an infectious focus yet and CRP had dropped to 166 mg/L. He was discharged the same day with oral amoxicillin/clavulanate. At home, he again developed fever and on POD 9, pus drained from the left thoracic incision. He was seen in the outpatient clinic on POD 15. At that moment, fever had subsided but the left thoracic incision still showed some redness. Culture of the wound was sterile. Amoxicillin/clavulanate was continued for another 2 weeks and the wound healed without any further complications. At 4 months postoperatively, he is doing well and the bar is still in place.

1.5. Case 5

This 16-year-old adolescent boy developed erythema of both thoracic wounds on POD 2. C-reactive protein was 123 mg/L. Intravenous antibiotics were switched to meropenem and metronidazole; on POD 3, fosfomycine was added because of a rising CRP (148 mg/L). On POD 9, he complained of dyspnea. Chest x-ray showed bilateral pleural effusions. Pleural tab revealed 1 L of old blood. Moreover, CRP had risen again to 168 mg/L and white cell count was 13,500/μL. Antibiotics were switched to vancomycin and piperacillin/tazobactam. On POD 13, he complained of retrosternal pain. Ultrasound demonstrated a pericardial effusion, another chest x-ray showed displacement of the Nuss bar. During reoperation for repositioning of the bar, drainage of pus was noticed along the Nuss bar that was removed. Culture of the pus yielded methicillin-resistant *Staphylococcus epidermidis*. Intravenous antibiotics were continued for another week. On POD 27, he was discharged. Oral antibiotic treatment was continued for 3 more weeks. Two months postoperatively, he is doing well but refuses further attempts for correction of his funnel chest.

1.6. Case 6

This 17-year-old adolescent boy underwent thoracoscopic lung biopsy for multiple lung spots before his funnel chest operation. Histologic examination of the lung biopsy revealed postinfectious changes. On POD 2 after the Nuss procedure, he suffered pain and had fever (38.4°C). White

Download English Version:

https://daneshyari.com/en/article/9373402

Download Persian Version:

https://daneshyari.com/article/9373402

Daneshyari.com