

## Tilburg University

### Scrotal pneumatocele

Coppes, M.J.; Roukema, J.A.; Bax, N.M.A.

*Published in:*  
The Journal of Pediatric Surgery

*Publication date:*  
1991

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*  
Coppes, M. J., Roukema, J. A., & Bax, N. M. A. (1991). Scrotal pneumatocele: A rare phenomenon. *The Journal of Pediatric Surgery*, 26(12), 1428-1429.

#### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

#### Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

# Scrotal Pneumatocele: A Rare Phenomenon

By M.J. Coppes, J.A. Roukema, and N.M.A. Bax  
Eindhoven, The Netherlands and Utrecht, The Netherlands

● In contrast to what would be expected in newborns with pneumoperitoneum, pneumoscrotum is a rare phenomenon. A newborn who presented with a pneumoscrotum as first, overt, sign of pneumoperitoneum is described. A perforated Meckel's diverticulum was responsible for the airleak.

Copyright © 1991 by W.B. Saunders Company

**INDEX WORDS:** Pneumoscrotum; pneumoperitoneum; neonatal necrotising enterocolitis; Meckel's diverticulum.

**M**OST FULL-TERM newborns have an open processus vaginalis.<sup>1</sup> Therefore, one would expect intraabdominal pathology frequently to be expressed in the scrotum. However, this is not the case. We present a newborn with a pneumoperitoneum caused by a perforated Meckel's diverticulum that presented with a pneumoscrotum.

## CASE REPORT

A 1,780-g boy was born vaginally after 32 weeks gestation. Apgar scores were 6 and 8 after 1 and 5 minutes, respectively. The child developed respiratory distress for which he was treated with nasal continuous positive airway pressure during 2 days. To prevent apnoeic spells, caffeine was given intravenously. On the third day a sudden swelling of the right scrotum without crepitation was noted. The swelling was translucent and compressible but could not be emptied into the abdomen, suggesting intrascrotal trapping of gas. The abdomen was tense and hypertympanic. Respiration was normal. A plain abdominal x-ray showed a pneumoperitoneum and confirmed the presence of a pneumoscrotum on the right. Air in the left inguinal region was also noted (Fig 1). On chest x-ray no signs of pneumothorax or pneumomediastinum were observed. Because the abdominal palpation was painful, a gastrointestinal perforation was suspected and laparotomy was performed. A perforated Meckel's diverticulum with local signs of peritonitis was found. The diverticulum was resected. Subsequently, the right scrotum was punctured and free air could be removed by suction. There were no postoperative complications. Histological examination of the resected diverticulum did not show the presence of ectopic gastric or pancreatic mucosa.

## DISCUSSION

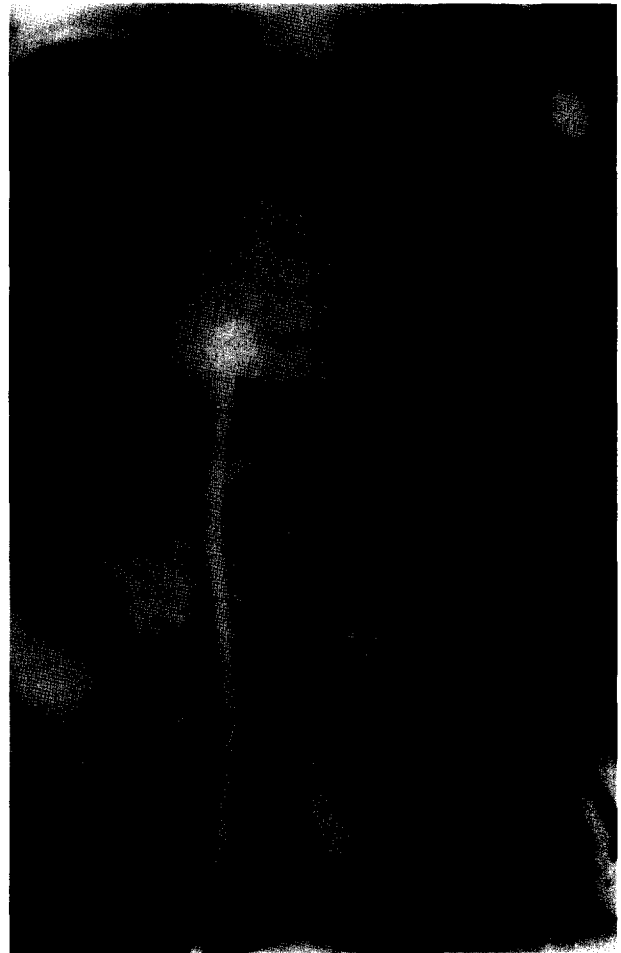
A pneumatocele reflects the presence of a pneumoperitoneum and requires a patent processus vaginalis.

---

*From the Departments of Pediatrics and Surgery, Catharina Hospital, Eindhoven, The Netherlands, and the Department of Pediatric Surgery, University Children's Hospital "Het Wilhelmina Kinderziekenhuis," Utrecht, The Netherlands.*

*Address reprint requests to N.M.A. Bax, MD, PhD, University Children's Hospital "Het Wilhelmina Kinderziekenhuis," Department of Pediatric Surgery, Postbus 18009, 3501 CA Utrecht, The Netherlands.*

Copyright © 1991 by W.B. Saunders Company  
0022-3468/91/2612-0026\$03.00/0



**Fig 1.** The plain abdominal x-ray shows a pneumoperitoneum and a large air shadow in the right inguinoscrotal region. Air in the left inguinal area is also noted.

Patency mainly depends on postnatal age. Eighty percent to 90% of full-term newborns have an open processus vaginalis<sup>1</sup>; at 1 year of age this percentage has decreased to 31%. In adults, at necropsy,<sup>2</sup> a patency rate of 15-30% has been reported.

Although the processus vaginalis is patent in the vast majority of newborns, expression of intraabdominal pathology in the scrotum is relatively rare. Accumulation of blood in the scrotum as a result of intraabdominal hemorrhage and scrotal inflammation as a result of meconium peritonitis have only been described as case reports.<sup>3,4</sup> On the other hand, hydroceles as a result of ventriculoperitoneal shunting are less uncommon.<sup>5</sup>

Intraperitoneal free air is usually the result of gastrointestinal perforation.<sup>6</sup> In patients who are ventilated artificially, air dissecting along the respiratory tree should be considered<sup>7,8</sup>; usually, although not always, pneumothorax or pneumomediastinum is then present. Therefore, differential diagnosis between pulmonary and gastrointestinal leak may occasionally be difficult. The presence of a large intraperitoneal airfluid level on abdominal x-ray favors the latter diagnosis. However, in a large percentage of neonates with a gastrointestinal perforation this radiological sign will be absent.<sup>10</sup> If the diagnosis is doubtful, radiological contrast study of the gastrointestinal

tract using Metrizamide, a water-soluble contrast agent, has been advocated.<sup>9</sup>

In the presented patient a gastrointestinal perforation was suspected and laparotomy was performed. A perforated Meckel's diverticulum, an extremely rare condition in newborns, was found. The fact that no ectopic, gastric, or pancreatic mucosa were found in the resected specimen is even more striking. The full-thickness necrosis in the diverticulum could well have been a manifestation of neonatal necrotizing enterocolitis in the same way as neonatal enterocolitis has been implicated in the pathogenesis of perforation of the appendix in the neonatal period.<sup>1</sup>

#### REFERENCES

1. Rowe MI, Lloyd DA: Inguinal hernia, in Welch KJ, Randolph JG, Ravitch MM, et al (eds): *Pediatric Surgery* (ed 4). Chicago, IL, Year Book, 1986, pp 779-793
2. Rowe MI, Copelson LW, Clatworthy HW: The patent processus vaginalis and the inguinal hernia. *J Pediatr Surg* 4:102-107, 1969
3. Henry HH II: Unusual presentation of splenic rupture. *Soc Pediatr Urol Newslett* October 11, 1978
4. Cos LR, Linke CA, Valvo JR: Inflammatory communicating hydrocele. *Urology* 20:528-529, 1982
5. Crofford MJ, Balsam D: Scrotal migration of ventriculoperitoneal shunts. *AJR Am J Roentgenol* 141:369-371, 1983
6. Mestel AL, Trusler GA, Humphreys RP, et al: Pneumoperitoneum in the newborn. *Can Med Assoc J* 95:201-204, 1966
7. Aranda JV, Stern L, Scott Dunbar J: Pneumothorax with pneumoperitoneum in a newborn infant. *Am J Dis Child* 123:163-166, 1972
8. Grundmann R, Kindler J: Pneumoperitoneum unter maschineller Beatmung mit positiv endexpiratorischen Druck. *Med Welt* 32:320-332, 1981
9. Cohen MD, Schreiner R, Lemons J: Neonatal pneumoperitoneum without significant adventitious pulmonary air: Use of metrizamide to rule out perforation of the bowel. *Pediatrics* 69:587-589, 1982
10. Knight PJ, Abdenour GA: Pneumoperitoneum in the ventilated neonate: Respiratory or gastrointestinal origin? *J Pediatr* 98:972-974, 1981
11. Bax NMA, Pearse RG, Dommering N, et al: Perforation of the appendix in the neonatal period. *J Pediatr Surg* 15:200-202, 1980