

Emergent Treatment of Epidural Pneumatosis and Pneumomediastinum Developed Due to Tracheal Injury: A Case Report

Trakeal yaralanma sonucu gelişen pnömomediastinum ve epidural pnömotozisin acil tedavi yaklaşımı: Olgu sunumu

Türkiye Acil Tıp Dergisi - Turk J Emerg Med 2010;10(4):188-190

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SUMMARY

The presence of air in epidural space is called epidural pneumatosis. Epidural pneumatosis is a rarely encountered phenomenon in emergency medicine practice. A 10-year-old patient was admitted with cervical trauma due to a bicycle accident. Subcutaneous emphysema, pneumothorax, pneumomediastinum and epidural pneumatosis were detected. Pretracheal fasciotomy after tube thoracostomy and closed underwater drainage were performed. Since sufficient clinical improvement could not be observed, tracheal exploration and primary repairment were performed. Only after these interventions, epidural pneumatosis and pneumomediastinum completely regressed. The case is presented due to its rarity and with the purpose to remind clinicians of epidural pneumatosis in tracheal injuries.

Key words: Emergency surgery; surgery; tracheal rupture.

ÖZET

Epidural pnömatozis epidural boşlukta hava bulunmasıdır. Epidural pnömatozis acil tıp pratiğinde nadir rastlanılan bir durumdur. On yaşında bisiklet kazası sonucu servikal travma geçiren hastada klinik olarak subkutan amfizem, radyolojik olarak pnömotoraks, pnömomediastinum ve epidural pnömatozis geliştiği izlendi. Hastaya sol tüp torakostomi + kapalı sualtı drenajı takibinde pretrakeal fasyanın açılması işlemi uygulandı. Yeterli düzelme izlenmemesi üzerine trakea eksplore edildi ve primer onarım yapıldı. Bu tedaviler sonrası epidural pnömatozis, pnömomediastinum ile birlikte tamamen geriledi. Bu olgu epidural pnömatozisin çok nadir görülmesi ve trakea yaralanmalarında akla getirilmesi amacıyla sunulmuştur.

Anahtar sözcükler: Acil cerrahi; cerrahi; trakea rüptürü.

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Introduction

The presence of air in epidural space is called epidural pneumatosis.^[1,2] The combination of epidural pneumatosis with pneumomediastinum and pneumothorax is a very rare condition.^[3] This condition can be observed in the cases of trauma, epidural anesthesia, lumbar puncture, pneumothorax, epidural abscess and pneumomediastinum.^[1]

We present a case of epidural pneumatosis developed due to pneumomediastinum after tracheal injury without vertebral trauma and surgery.

Case Report

A 10-year-old male patient was admitted to our emergency department with extensive swelling in the face, eyelids, neck, chest and abdomen after a bicycle accident. He indicated that his complaints had begun just after the injury. He was feeling short of breath and his general condition was not good. He denied any remark in his medical history. Extensive subcutaneous emphysema was detected on physical examination. No trauma other than a 1 cm ecchymosed area about 2 cm above the jugulum in the neck was found. Respiratory sounds could not be heard because of extensive subcutaneous emphysema. Blood pressure, pulse rate and breath rate were 104/65 mmHg, 91 beats per minute and 23 breaths per minute, respectively.

Posteroanterior chest radiograph displayed left sided pneumothorax, large subcutaneous emphysema and pneumomediastinum. Furthermore, thoracic computed tomography (CT) showed epidural pneumatosis (Fig. 1). Cranial CT and X-rays of the vertebral column were nor-



Fig. 1. Thoracic computed tomography showing epidural pneumatosis.

mal. The patient was taken to the intensive care unit; a left sided tube thoracostomy and closed underwater drainage were performed. Pretracheal fasciotomy, which is the first choice of emergency intervention for pneumomediastinum, through a 3 cm wide incision 2 cm above the jugulum was also performed. Extensive air drainage was observed. Since sufficient clinical improvement could not be observed, the patient was taken to the operation room and the trachea was explored through collar incision. A 1.5 cm defect on the left side of the trachea in the neighborhood of the esophagus was detected and repaired with 3/0 polypropylene suture. Rigid bronchoscopy and esophagoscopy were performed and no other defect was observed.

The patient was followed-up in the intensive care unit. Prophylactic antibiotherapy was applied. During the post-operative clinical and radiological follow-up, epidural pneumatosis, subcutaneous emphysema and pneumomediastinum regressed day by day and completely resolved (Fig. 2). The patient was discharged on 7th day after admission.

Discussion

Epidural pneumatosis is the presence of air in the epidural space. This condition can be observed in the cases of trauma, epidural anesthesia, lumbar puncture, pneumothorax, epidural abscess and pneumomediastinum. Air in the mediastinum can leak into the epidural space through intercostal neural foramen, since no fascial barrier between mediastinal and epidural spaces exists. Typically, because of the low resistance of loose connective tissue against rich vascular plexus in the anterior, air leaks to epidural

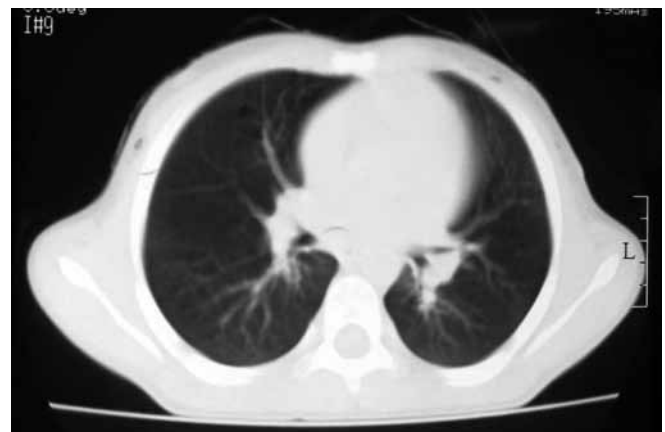


Fig. 2. Thoracic computed tomography showing the regression of epidural pneumatosis and other signs.

space which is in the posterior. Epidural pneumatosis with pneumomediastinum generally regresses with the primary treatment of pneumomediastinum. The pneumomediastinum and epidural pneumatosis due to ecstasy usage was reported.^[1] A spontaneous case with meningitis is also available in the literature.^[4] The togetherness of epidural pneumatosis with spontaneous pneumothorax and pneumomediastinum is very rare.^[3] Cases developing due to multiple vertebral fractures were also reported.^[5]

There was a traumatic ecchymosis on the skin in front of the trachea. Despite the pretracheal fasciotomy and tube thoracostomy, pneumomediastinum did not regress. As a result, surgical exploration of the trachea was required. In the postoperative period, subcutaneous emphysema and pneumomediastinum regressed day by day, both clinically and radiologically. No additional intervention for epidural pneumatosis was performed. By regression of pneumomediastinum, epidural air gradually resolved.

Conclusion

Epidural pneumatosis is a rare condition that develops due to variety of reasons. We have presented this case since it is a rare condition and the patient recovered without any additional intervention after the treatment of pneumomediastinum.

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