THREE UNUSUAL CASES OF EMPHYSEMA

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EMPHYSEMA is defined as the abnormal presence of air or gas in the body tissue. The following three cases are of interest since they occurred in situations where, under other circumstances, the anaesthetic technique might have been blamed for their occurrence.

Case No 1 Mrs L, a 17-year-old primiparous patient, was most anxious to follow the nurses' directions. During the second stage of her labour she was told to take a deep breath and push while holding her breath, to assist the descent of the infant during her uterine contractions. During her prolonged second stage of labour the nurses state that they "never saw anyone push so hard". Some secondary effects are read from the nurses' notes:

6 20 p m Caput visible. To the case room. Parts of face and eyes oedematous during last half-hour.

7 35 p m Parts of face, neck, and chest appear oedematous. Patient complains of pain in chest when attempting to take a deep breath.

On physical examination the respiratory and cardiovascular systems appeared normal. However, there was a marked facial swelling and periorbital "oedema" particularly on the left side. Swelling of the neck and the anterior, posterior, and lateral chest wall was noted to the level of the fifth rib. There were swellings beneath the angles of the scapulae with crepitations on palpation. Twenty-four hours after its onset the emphysema was subsiding but a crunching sound was audible synchronous with the heart beats at the apex area. This is significant of mediastinal emphysema. In the obstetrical delivery room a portable X-ray film was exposed and the radiologist's report states: "Extensive subcutaneous emphysema is seen primarily in the neck on both sides extending into the supra-clavicular regions and over the upper thorax anteriorly. There is some air in the superior mediastinum producing a pneumo mediastinum. There is no definite evidence of pneumothorax." The patient did well on the normal post-delivery care. Two days after delivery the nurses' notes do not mention the oedema. Four days later the patient and baby went home in good health and spirits.

Case No 2 Mrs X was intubated nasally in the dental operating room and subjected to a two-hour full-mouth dental procedure. During this procedure the dentist used a surgical drill powered by compressed air and operating at a pressure of 30 to 60 pounds per square inch. Towards the end of the procedure the anaesthetist noticed surgical emphysema in the neck and the right side of the face. Radiographs taken on the day of operation and three days later were both approximately the same. They are reported as showing "Considerable interstitial emphysema in the facial region extending from the level of the malar bones down to the chest wall. The degree of surgical emphysema is more marked on the right side." Three days after the operation the nurses' notes no longer remark on the facial swelling. Mrs X was treated with penicillin and chloromycetin. There were no complications and she was discharged from hospital in good health 10 days after her extensive surgical procedure.

Case No 3 Child A had a dental procedure under local anaesthesia in the dentist's office. This procedure involved the use of a surgical drill operated by compressed air.

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under a pressure of 30 pounds per square inch. A few hours after the dental procedure the child's mother noted some unusual swelling on the child's face and stated that it felt unusual when she touched this area.

Mrs. A immediately took the child to her family doctor, who on examination found the following: A healthy child which appeared its stated age and in no apparent distress. The cardiovascular, respiratory, and gastrointestinal systems were normal. However, there was swelling of the face and neck on the same side as a recent dental procedure. The area produced crepitations and the characteristics of surgical emphysema on palpation. The swelling did not extend to the other side of the face or chest. After consultation with the family dentist the child was given penicillin and sent home to be observed by its mother. Within 24 hours the swelling had subsided, and both mother and child were well.

DISCUSSION

In the first case the patient quite obviously produced a rupture of some element of the respiratory tree into the mediastinum. Had this occurred under general anaesthesia undoubtedly the blame for its occurrence would have been assigned to the anaesthetic technique.

While the second patient had a nasal tracheal tube in place, and while interstitial emphysema is not unknown as a complication of intubation, yet the distribution of the emphysema would be considered unusual, and its appearance at the end of a two-hour operation rather than early in its course would be most unlikely.

Case number 3 developed the same type of emphysema where no general anaesthesia was involved, the common factor in the two cases being the use of a dental drill powered by compressed air which was emitted from the drill in a small jet under very high pressure. It would appear that these drills are potentially dangerous, and this potentiality to do damage to the patient is being investigated further.

RÉSUMÉ

L'auteur rapporte trois cas inusités d'emphysème, c'est-à-dire de présence anormale d'air ou de gaz dans les tissus. Dans le premier cas, il s'agit d'une primipare qui, durant la deuxième phase du travail, a retenu sa respiration et a poussé fortement pendant des heures. Immédiatement avant la délivrance, on a noté un emphysème marqué sur la face, le cou et le thorax. Des radiographies et un craquement synchronisé avec les bruits du cœur ont montré que la malade avait un pneumo-médiastin. L'évolution postpartum fut normale, et la malade reçut son congé au bout de quatre jours.

Les deux autres cas d'emphysème résultaient d'air sous pression utilisé pour activer les pointes à forer des dentistes. La pression nécessaire pour faire fonctionner ces instruments est de 30 à 60 livres, et elle sort par un tout petit orifice. Un des malades était un enfant soumis à un traitement dentaire sous anesthésie locale au bureau du dentiste. L'autre subissait une opération dentaire majeure, sous anesthésie générale avec intubation nasale, au Scarborough General Hospital. Les deux malades ont présenté un emphysème du cou, de la face et du thorax, mais ils ont guéri sans complication apparente.