

WEERSPANNIGE ASMATIESE BRONGIALE AFSLUITING EN GEKONTROLEERDE ASEMHALING

Sedert die tyd van Hippocrates is die term asma, of moeilike asemhaling, al bekend en dit was gebruik om enige soort dispnee aan te dui totdat Laennec die gebruik van die term uiteindelik beperk het tot siektes van die longe. Spain en Kaufman¹ het die oorspronklike waarnemings van Laennec en Rokitansky onlangs weer herhaal, naamlik dat die grondliggende letsel van chroniese pulmonale emfiseem die teenwoordigheid is van obstruksie in die endluggypies, en dat dit nie 'n primêre verandering in die wande van die longblasies is soos wat ander werkers meen nie. Pasiënte met sogenaamde 'intrinsieke' asma word in die Verenigde State as basies asmaties beskou alhoewel spesifieke allergene nie aangetoon kan word nie. In Brittanje word hierdie pasiënte as brongities beskou aangesien hul simptome vererger word deur dieselfde omstandighede wat brongitis vererger. Die hoofkenmerke van die asmatiese toestand is luggypkramp en oortollige slymerige speeksel — altwee waarvan vererger word deur infeksies van die lugweë, die besoedeling van die lug, en ongunstige weersomstandighede.² Alhoewel dit welbekend is dat rook prikkeling veroorsaak van die keelholte, die larinks en die luggype, is dit nie nodig om hierdie toestand as 'n aparte sindroom³ te omskryf nie. Wat egter wel seker is, is dat die gevolge van siektetoestande van die lugweë meer opvallend is by persone wat baie rook en wat in nywerheidsgebiede woon of wat sekere soorte werk doen wat hul blootstel aan stof, soos byvoorbeeld in die myne.⁴

Dit is dus nie te verwonder nie dat luggypkramp kan ontstaan as 'n vreemde voorwerp soos 'n endotracheale buis in die trachea geplaas word nie. Die gevalleverslag wat ons in hierdie uitgawe van die *Tydskrif* plaas (p. 703) het egter opvallende kenmerke. Eenstens, die luggypkramp het verhoed dat daar enige uitsetting van die bors plaasvind met positiewe druk in die lugweg. Hierdie feit ondersteun nie die bepalende rol van taai slym as die uiteindelijke oorsaak van verstikking nie. Broom⁵ het pas 'n verslag gepubliseer van twee gevalle in status asthmaticus wat sterwend was ten spyte van die gebruik van steroïde middels, en met fiksasie van die bors. Hierdie gevalle is suksesvol behandel met volgehoue onderbroke positiewedruk asemhaling onder narkose, maar met die byvoeging van suksametonium, 'n verslapmiddel van willekeurige spiere wat ook verwyding van die luggype veroorsaak.⁶ Dus, alhoewel die meeste, indien nie al die middels wat in die geval van Johannesburg af gerapporteer is, kragtige verwyding van die luggype teweegbring, veral halotaan⁷ en eter, lyk dit tog verstandig om aan te toon dat die ou gevestigde gebruik om atropien en plaaslike narkose as 'n roetine aan te wend vir endotracheale intubasie by algemene narkose, nodig is.

Intussen moet die waarde van gekontroleerde asemhaling in 'n hele aantal siektes nie misgekyk word nie. In wat Fitts⁸ as sy moeilikste geval van cor pulmonale

en luggypkramp beskryf, is gekontroleerde asemhaling gebruik in narkose met tiopentoon wat voorafgegaan is deur omnopon en skopolamien met die byvoeging van flaxedil. Hierdie pasiënt het dus 'n goeie tydjie van vrystelling van sy lyding gehad en dit is aangetoon dat dit nie sy lewe in gevaar gestel het soos vroeër gemeen is nie. Per slot van rekening, eenvoudige fisiologiese (funksionele) ooruitsetting van die longblasies sal nie die spesifieke anatomiese en fisiologiese veranderinge veroorsaak wat saamhang met chroniese pulmonale emfiseem nie. Hierdie feit verklaar waarom emfiseem nie so dikwels voorkom by spelers van windinstrumente en glasblasers nie.⁹

Die waarde van gekontroleerde asemhaling word vandag heeltalmaal aanvaar wat betref die behandeling van emfiseem waar die sogenaamde sentrogeniese dryfkrag van asemhaling, wat gewoonlik sensitief is vir koolstofdioksied, tydelik buite werking gestel is deur vergiftiging met koolstofdioksied, en waar opheffing van die chemo-refleksiewe dryfkrag deur die toediening van suurstof tot apnee lei. Hierdie sindroom is onlangs beskryf in miksedemkoma¹² en dit kan verwag word in gevalle van hepatiese koma en veral in gevalle van barbituurvergiftiging. Gekontroleerde asemhaling, met of sonder die toevoeging van 'n spierverslapmiddel, is met groot sukses gebruik by die behandeling van tetanus, poliomiëlitis, verstikking van die pasgeborene (met sekere voorbehoude),¹³ penisillien-anafilakse,¹⁰ en die ingestampte bors¹¹ en by ander ongelukke waar lewens afhanklik is van die tydigte instelling van die een of ander vorm van kunsmatige asemhaling. In daardie uitsonderlike gevalle van volledige fiksasie van die bors ten spyte van gekontroleerde asemhaling, wat onderneem word deur 'n lugweg wat skynbaar oop is, moet spoeling met tripsien bepaald uitgetoets word, met die voorbehoud egter dat perifere arteriële kloppings nog vasgestel kan word. Tripsien, 50 mg. (van die kalsium sout) in 10 ml. fisiologiese soutoplossing, word in die endotracheale buis afgespoel en een minuut later word dit weer uitgesuig. In die afwesigheid van waarneembare sirkulasie bied 'n torakotomie wat dadelik uitgevoer word die enigste hoop op opwekking.

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INTRACTABLE ASTHMATIC BRONCHIAL OCCLUSION AND CONTROLLED RESPIRATION

The term asthma, or difficult breathing, dates at least from the time of Hippocrates and was used to denote dyspnoea from any cause until Laennec eventually restricted its use to diseases of the lungs. Spain and Kaufman¹ recently reiterated the original observations of Laennec and Rokitsky that the basic lesion of chronic pulmonary emphysema is the presence of obstruction in the terminal bronchioles, and not a primary change in the alveolar walls as has been suggested by other workers. Patients with so-called 'intrinsic' asthma are regarded as basically asthmatic in the United States, although specific allergens cannot be demonstrated. In Britain these patients are called bronchitics because their symptoms are aggravated by the same agents that aggravate bronchitis. The principal features of the asthmatic condition are chronic bronchospasm and excessive mucoid sputum, both of which are aggravated by respiratory infections, air pollution, and adverse weather.² While smoking is well-recognized as a pharyngeal, laryngeal, and bronchial irritant, it is perhaps not justified to refer to the irritation caused by smoking in terms of a separate syndrome.³ What is certain, however, is that the effects of these illnesses are probably more marked in those who are heavy smokers or who live in an industrial environment or who work in certain occupations where they are exposed to dust, such as in mines.⁴

And so it is perhaps not surprising that bronchospasm may appear when a foreign body the size of an endotracheal tube is placed in the trachea. The case report which is published on p. 703 of this issue of the *Journal* appears to contain notable features, especially that the bronchial spasm allowed no chest expansion on positive pressure in the airway. This fact does not support a predominant or even significant rôle for viscid mucus as the final cause of asphyxia. Broom⁵ has just published a report on two patients with status asthmaticus, who were moribund despite steroids and had chest fixation. Both were successfully treated by continuous intermittent positive-pressure respiration under anaesthesia, but with the addition of suxamethonium, a voluntary-muscle relaxant with proved bronchodilator effect.⁶

Thus, although most if not all the drugs used in the case reported from Johannesburg are indeed potent bronchodilators, particularly halothane⁷ and ether, it would appear wise to observe the time-honoured use of routine atropine and topical anaesthesia before endotracheal intubation during a general anaesthetic.

Meanwhile the value of controlled respiration in a variety of illnesses should not be overlooked. In what Fitts⁸ describes as the most distressing case of cor pul-

monale and bronchial spasm in his experience, controlled respiration was used after anaesthesia with thiopentone, preceded by omnopon and scopolamine, and with the addition of flaxedil. Thus this patient had a profitable rest from his misery, and it was shown that it did not endanger life as was previously thought. After all, simple physiological (functional) overdistention of the lung alveoli will not produce the definitive anatomical and physiological changes associated with chronic pulmonary emphysema. This fact explains the infrequency of emphysema among players of wind instruments, glass blowers, etc.⁹

The value of controlled respiration is today firmly established in the treatment of emphysema where the so-called centrogenic drive for respiration, normally sensitive to carbon dioxide, is temporarily inactivated by carbon dioxide intoxication; and the suspension of the chemoreflex drive by oxygen administration results in apnoea. This syndrome has recently been described in myxoedema coma,¹² and can definitely be expected in cases of hepatic coma and particularly in cases of barbiturate poisoning. With or without the addition of a muscle relaxant, controlled respiration has been used with great success in tetanus, poliomyelitis, asphyxia neonatorum (with certain reservations),¹³ penicillin anaphylaxis,¹⁰ and the 'stove-in chest'¹¹ and in other accidents where lives depend on the timely institution of some form of artificial respiration. In those extremely rare cases of complete fixation of the chest, in spite of controlled respiration being attempted through an apparently clear airway to relaxed patients, trypsin lavage⁵ should certainly be tried, provided some peripheral arterial pulsations can still be ascertained. Trypsin (calcium salt), 50 mg. in 10 ml. of physiological saline, is flushed down the endotracheal tube, and one minute later it is aspirated. But in the absence of a detectable circulation a thoracotomy, performed without any delay whatsoever, offers the only possible hope of resuscitation.

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