Tracheostomies: a brief history

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Whilst much of wound care discussion within these pages may be focused on the healing of chronic wounds, and the catalogue of afflictions and treatment modalities that fall under such a classification, wounds arising from surgical intervention quite obviously also fall within the remit of the nurse and wound care specialist. Much thought and discussion is given over to those chronic, far too frequent wound cases that occupy journals and conferences every month, but what of surgical site wounds? Comparatively little coverage is given to these, yet satisfactory healing and prevention of postoperative surgical site infections (SSIs) is surely the primary goal of any nursing staff caring for surgical patients. Indeed, some 1632 SSIs were detected through inpatient or readmission surveillance in the UK in 2015/16 (Public Health England, 2016) — no trifling matter given the costs involved. Drain sites, intravenous sites, and surgical closures are all at risk, and can present quite a different challenge to macerated, chronic wounds.

Of those surgical interventions, tracheostomies are the most commonly performed procedure in the critically ill, amounting to nearly 10% of intubated patients (Durbin, 2010).

OPERATION WINDPIPES

It may come as some surprise to readers that tracheostomies are amongst the oldest surgical procedures known (Durbin, 2005), having been suggested in the Edwin Smith papyrus, dating around 1600 BCE (Cooper, 2016). The earliest written records of the procedure are to be found in the writings of both Galen, who cited Asclepiades as the conceiver of the operation, and Aretaeus, both of which date from the 2nd century (Borman and Davidson, 1963). Whilst the outcomes of these operations remains unknown, a successful intubation of a sheep through the use of a hollow reed was recorded in the Babylonian Talmud, also in the 2nd century (Borman and Davidson, 1963).

Some 14 centuries passed since Asclepiades' conception of the technique until its successful use on a human patient, with Brasavola saving the life of a tracheal abscess patient in 1546. Hieronymus Fabricius described the procedure as the "Scandal of Surgery" at the time in 1617, and refused to perform it himself — his exact reasoning is unclear. Nonetheless, he saw fit to suggest a technique to anyone willing, and his method is not dissimilar to that employed today (Brandt and Goerig, 1986). A mere 23 successful cases were reported between 1620 and 1820, until one Armand Trousseau claimed in 1833 that he had performed some 200 tracheostomies, saving over 50 juvenile diphtheria patients in doing so (Nelson, 1957). Whatever his claims, Trousseau was quite literally instrumental in the advancement of tracheostomy technique, developing as he did the Trousseau Tracheal Dilator, which remains a standard tool for cannula insertion today.

DISCOVERED, LOST AND FORGOTTEN, THEN REFOUND

In a now-familiar pattern repeated throughout medical history, the humble tracheostomy represents yet another case whereby ancient civilisations discovered an innovative method of treating a particular ailment, only for centuries (if not millennia) to pass without further advancement, due in part to unjustified scorn, before finally being accepted once the body of proof was truly undeniable.

However, it is intriguing to note that the poor healing properties of the trachea were one of the ancient reasons for the abandonment of tracheostomies; cartilaginous tissue would not reunite after incision. Indeed, Caelius Aurelianus in the 5th century opined thus "Laryngotomia is a futile and irresponsible idea set forth by Asclepiades". It only took a mere two millennia until Belsey (1950) noted the implication of poor perfusion and the structural difficulties posed by cartilage in achieving satisfactory wound closure. It seems that what may present itself as the obvious solution is not always the easiest to successfully effect; a lesson oft-repeated throughout the annals of wound care history! WUK