James Young Simpson And The Development Of Obstetric Anaesthesia

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Citation

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Abstract

It is now over 160 years since the Scottish obstetrician James Young Simpson (1811-1870) administered the first general anaesthetic to a woman in childbirth. His initial case in 1847 was just four months after William Morton's demonstration of the anaesthetic properties of ether in Boston. Simpson popularised anaesthesia and pain relief during confinement despite initial opposition. His many accomplishments also included the development of obstetrics forceps known as Simpson forceps and the advocacy of midwifery and obstetrics in hospital practice.

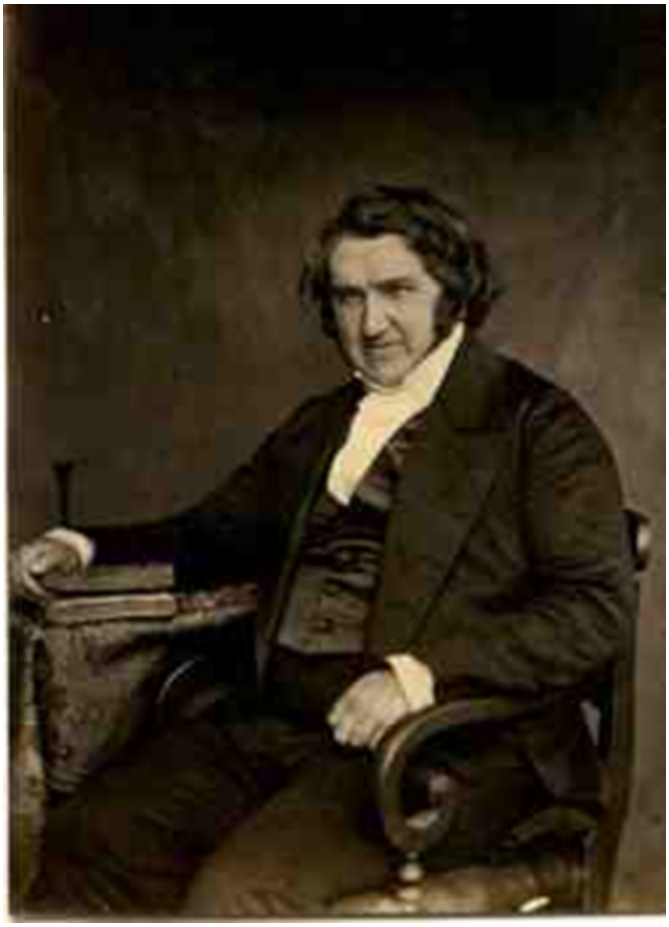
SIMPSON'S LIFE

James Simpson was born on 7 June 1811 in Bathgate, Scotland and was the youngest of seven children [1]. His father David Simpson was the baker in Bathgate and his mother died when James was aged 9. He excelled in his early schooling and at the age of 14 entered the University of Edinburgh. Initially he studied an Arts course, but two years later changed to the medical degree. He completed the medical course at the young age of 18 years, but had to wait a further two years before graduation and a licence to practice. During this interim time he pursued his interest in midwifery and pathology visiting clinics in France and throughout England.

On his return to Edinburgh he initially entered general practice but soon became sort after for his expertise in obstetrics. In 1838 he secured an appointment at the Edinburgh Lying-in Hospital and began lecturing students. When Simpson was 28, the Chair of Midwifery at Edinburgh University became vacant. The Chair was founded in 1726 and was the only such position in Britain. Simpson actively sought election to the position and narrowly secured this post by a single vote over Evory Kennedy of Dublin. He was Professor of Midwifery at Edinburgh for the next 30 years and established the department as the foremost centre throughout the world [2]. (Fig 1)

Figure 1

Figure 1: James Young Simpson (1811-1870)



ETHER IN CHILDBIRTH

The first use of ether as a general anaesthetic has long been

credited with William Morton following his public demonstration in the Ether Dome at Boston Massachusetts on 16 October 1846. Recent evidence has disclosed that a Georgia surgeon, Dr Crawford Williamson Long used ether with his first case on 30 March 1842 [3]. Ether had been known since the 16th century and was referred to initially as ‘oil of sweet vitriol' due to the fact that it was synthesised by distilling a mixture of ethanol and sulphuric acid (then known as oil of vitriol). It was commonly used as a solvent prior to its discovery as an anaesthetic agent [4].

After Morton's publicised case, Simpson was eager to employ ether in obstetric anaesthesia. His first case was in January 1847 and reported in the March issue of the monthly Journal of Medical Science [5]. The mother had a contracted pelvis and her first obstructed labour required the delivery of the foetus following a craniotomy. In her second pregnancy she arrived in Edinburgh at nearly the end of her ninth month and Simpson determined that it was too late to recourse to the induction of premature labour. She commenced spontaneous labour and the presenting head was, ‘high mobile and difficult to touch and a pulsating loop of umbilical cord was felt'. A decision was made by Simpson to administer a general anaesthetic as he records ‘assisted by Dr Zeigler, Dr Keith and Mr Figg, I shortly after nine o'clock made the patient inhale the ether vapour. As she afterwards informed us, she almost immediately came under the anodyne influence of the ether. I proceeded to turn the infant (as I had previously predetermined to do). A knee was easily seized and the child's extremities and trunk were drawn down but extreme exertion was required in order to extract the head. At length it passed the contracted brim with the anterior part of the right parietal bone deeply indented by pressure against the projecting promontory of the sacrum and the whole cranium flattened and compressed laterally.’

The initial use of anaesthesia in obstetrics sparked immediate controversy. Simpson's methods were opposed on religious grounds, but by only a small number of clergy. His opponents referred to the Bible as a justification of women's pain during childbirth with the principal spiritual command from the book of Genesis in which God condemned Eve's descendants to suffer pain during labour because of her disobedience in the Garden of Eden. The prominent obstetrician, Meigs in Philadelphia referred to the labour pain as ‘physiological pain'. A letter to the Lancet from Ashwell a well-known British obstetrician noted that anaesthesia during obstetrics represents ‘unnecessary interference with the providentially arranged process of healthy labour… sooner or latter to be followed by injurious and fatal consequences.’[6] It is difficult to assess the extent of opposition from Church officials. One Scottish theologian who was a contemporary of Simpson suggested the new methods represented a ‘trivial problem', which would not necessarily violate the position of the church.

Simpson was not averse to fighting for the principles in which he believed. He responded to the opposition on moral and religious grounds and also from a medical perspective. He was well educated in the classics and theology and his case was well argued. In one paper he quoted the words of Galen ‘dolor dolentibus inutilis est' (pain is useless to the pained). He wrote, ‘bodily pain with all its concomitant fears and sickening horrors is with very few, if indeed any exceptions, morally or physically a mighty and unqualified evil and surely any means by which its abolition could possibly be accomplished, with perfect safety and security deserves to be joyfully and gratefully welcomed by medical science.’[7]

DISCOVERY OF CHLOROFORM

Although ether was widely employed, it had many shortcomings. It was associated with severe nausea and vomiting in many instances and caused pulmonary irritation. Simpson began experiments on other potential obstetric anaesthetics. With his colleagues, Dr Thomas Keith and Dr Mathews Duncan he began some self-experiments using different solvent agents carried out in Simpson's own dining room. In each case a small amount of the test's liquid was placed in a cup and immersed in hot water to increase its volatility. Simpson and his assistants inhaled the vapours and recorded the effects. From these experiments, Simpson discovered the anaesthetic property of chloroform on 4 November 1847.

Simpson wasted no time in employing chloroform in his first obstetric case. This was the wife of Dr Carstairs of Edinburgh and the report was published in the Medico-Chirurgical Society of Edinburgh in 1847 [8]. He records, ‘the lady to whom it was first exhibited during parturition had been previously delivered in the country by perforation of the head of the infant, after a labour of three days duration. Three hours and a half after labour commenced, I placed her under the influence of the chloroform by moistening with half a teaspoonful of the liquid, a pocket-handkerchief rolled up into a funnel shape and with a broad or open end of the funnel placed over her mouth and nostrils. The child was expelled in about 25 minutes after the

inhalation was begun.' In gratitude the child was baptised 'Anaesthesia'.

Simpson enthusiastically promoted the use of chloroform not only in obstetric anaesthesia but shortly afterwards for all surgical cases. He noted in an address in December 1847 'I do not remember a single patient to have taken it who has not afterwards declared her sincere gratitude for its employment and her indubitable determination to have recourse again to similar means under similar circumstances.'[8]

Much of the opposition to obstetric anaesthesia resolved after Queen Victoria was administered chloroform during the birth of Prince Leopold, her eighth child in 1853. John Snow was her physician and the publicity helped to popularise its use [4]. Snow was critical of Simpson's methods suggesting that he commenced anaesthesia too early in labour and gave excessive doses. Such criticisms had little effect on Simpson whose achievements had given him an international stature.

CONCLUSION

Simpson's contribution to obstetric anaesthesia deserves great credit. He achieved many honours in his own lifetime. During his life he was made a Baronet within the inscription on his coat of arms reading 'Victo Dolore' (pain conquered). In 1841 he was elected President of the Edinburgh Obstetric Society, which was a post that he held for 17 years. He became physician to Queen Victoria in Scotland and was the first obstetrician to be appointed to the staff of the Edinburgh Royal Infirmary. He received state honours from Sweden and France and honorary doctorates from Oxford and Dublin.

Simpson made many other important contributions to obstetrics. His famous obstetric forceps first displayed in 1848 became widely used [9]. He invented a cranioclast for fracturing the foetal skull base and a uterine sound and sponge for dilating the cervix to provide access to the uterus for removal of endometrial polyps. He supported the concept of hand washing advocated by Semmelweis but was slow to realise the contribution of Lister who was his contempory in Edinburgh.

Figure 2

Figure 2: Simpson's Statue In Princes Street Edinburgh

Simpson had wide interests in the arts, classics and archaeology. Reflecting his own poor background, he was active in promoting medical and obstetric care for those in the lower classes. Simpson developed angina in his 50's and died from coronary disease on 6 May 1870. The government offered a burial at Westminster Abbey, but the family chose a burial site in Warriston Cemetery in Edinburgh. It was estimated that 30,000 citizens lined the streets on the way to his funeral. A statue to Simpson was erected with public funds in Princes Street, Edinburgh (Fig 2) and a bust of him was erected in St Andrews Chapel of Westminster Abbey with the following inscription, 'to whose genius and benevolence the world owes the blessings derived from the use of chloroform for the relief of suffering.'[10]

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