

PERINATAL LESSONS FROM THE PAST

Sir James Young Simpson (1811–1870) and obstetric anaesthesia

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Sir James Young Simpson of Edinburgh became famous for his discovery of the anaesthetic qualities of chloroform and his championship of obstetric anaesthesia. However, as the outstanding British obstetrician between 1840 and 1870, he also pioneered many other advances in obstetrics.

James Simpson was born in Bathgate, Linlithgowshire on 7 June 1811. He was the eighth child (seventh son) of David (died 1830) and Mary (died 1820; née Jarvie) Simpson. Both were of yeoman farmer stock, and David was the village baker. At the age of 4, James went to the local school where he excelled. The family determined to stint themselves in order to send him to college. In 1825 at the age of 14 he studied arts at Edinburgh University, transferring to medicine two years later. He qualified at the age of 18 but until he could take up his degree at the age of 20, he worked as assistant to the professor of pathology. Already he had determined to become an obstetrician even though the specialty was still regarded with disfavour by the profession. Settling in Stockbridge, he built up a large practice and obtained a position in the Leith Lying-in Hospital. From his writings and lectures on the subject, his exceptional ability was soon recognised. At the age of 24, he was elected president of the Royal Medical Society of Edinburgh and gave a remarkable paper entitled "Pathological observations on the diseases of the placenta".¹⁻⁴

The University of Edinburgh (founded 1583) was secular rather than religious in origin. Its medical faculty had become one of the finest in the world. The chair of midwifery, founded in 1726, was the first of its kind in the British Isles. The incumbent, Professor James Hamilton, was due to retire in 1839, and Simpson set his mind on succeeding him. Finally it was a choice between him and Evory Kennedy of Dublin. Simpson won by a single vote. Over the next 30 years he made Edinburgh the foremost centre in the field.

Simpson had a magnetic personality that appealed to all he met. Kindly, gentle, religious, and sympathetic, he inspired the confidence and love of his patients. All his life he worked extremely hard but always found time to attend the poor. He was an excellent host, gathering about him people from all walks of life. Exceptionally well read, he had wide interests. With an alert intellect, he was a brilliant conversationalist who enjoyed controversy. When in argument he was right, he was irresistible, and when wrong, formidable. Not only was he an acute observer

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and experimenter but also gifted with insight and vision. For example, in his graduation address he foretold the use of x rays and other methods of body imaging, saying: "Possibly by the concentration of electrical and other lights we may render many parts of the body, if not the whole body, sufficiently diaphanous for the practiced eye of the physician and surgeon".

Simpson was too busy to write textbooks. His many contributions to obstetrics were reported in numerous articles to the medical journals of the day. With Lever, he shared credit for pointing out the association of albuminuria and eclampsia. He advocated monitoring the fetal heart rate, and was perhaps one of the first to point out (1855) that fetal death was frequently preceded by slowing of the fetal heart rate.

Induction of labour and monitoring for fetal distress⁵

"... in cases where children of the same mother have died successively from the effects of different diseased states of the placenta, I believe that the induction of premature labour about the seventh or eighth month ought to be a principle of treatment prominently held in view, and



Figure 1 James Young Simpson (1811–1870).

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frequently had recourse to . . . the necessity for immediate induction of premature labour is sometimes shown in these cases by the supervention of lowness and depression, more rarely by the occurrence of irregularity and intermittence in the action of the fetal heart as heard by the stethoscope. Hence, in watching and treating these cases, auscultation should be constantly used to ascertain the first advent of this sign of danger to the life of the child."

Simpson was one of the first to make use of medical statistics—for example, he used them to prove that the male fetus tended to be larger than the female and was associated with a higher fetal (and maternal mortality). He also wrote on what became known as Sheenan's syndrome, on hermaphroditism, on placental and fetal pathology, on bimanual pelvic examination, on the use of version for contracted pelvis, and on induction of labour using a bougie between the intact membranes and uterine wall. Simpson supported the accommodation theory that claimed that the fetal presentation was determined by the instinctive movements of the fetus until it came to occupy the most comfortable position. Although opposed to Lister's carbolic acid spray, he appreciated the role that hospitals played in spreading infection and advocated pavilion-type hospitals. He also wrote on many general subjects, particularly archaeology.

Among the instruments that Simpson introduced were his obstetric forceps,⁶ widely used for many years. He designed a metallic uterine sound for exploring the cervix, iron wire sutures to reduce the risk of infection, and a cranioclast for fetal destruction. He also pioneered the use of a suction tractor in 1848, previously suggested by Arnott in 1829 and forerunner to the modern vacuum extractor. "Made from a trumpet shaped vaginal speculum, the cup was fitted with a piston at its narrow end; the broad end was covered with leather. Withdrawing the piston fixed the cup, greased with lard, to the fetal scalp. Traction on the cup produced descent of the head".⁶ Simpson wrote: ". . . the instrument is now nearly perfect, I showed it last Wednesday to the Medical Chirurgical Society . . . there was a great crowd . . . the experiment went off beautifully. I fixed a small tractor to the palm of my right hand and lifted up with it an iron weight of 28 pounds. One of the physicians of the St. Petersburg Court is here. He admired the work but doubted that it would work in practice. Well I took him and others to see a baddish case and fixed the tractor on. The operation was most successful. The Russian cried "C'est superbe; c'est immortalité à vous".⁷

But, of course, Simpson is remembered best for his introduction of ether anaesthesia into obstetrics on 19 January 1847, only four months after Morton's demonstration in Boston. His patient had a severely contracted pelvis and Simpson used ether to enable him to accomplish version and breech extraction. He immediately became an enthusiastic supporter and publicist of its use, vigorously countering the arguments of those who suggested God had ordained that women should suffer during childbirth. At the same time he noted that ether had certain disadvantages and set about finding a better alternative. The outcome of his research led to the use of chloroform in a similar case on 8 November 1847 to such good effect that the baby was christened Anaesthesia. For many years to come chloroform was the anaesthetic gas of choice.⁶

On the first use of chloroform anaesthesia^{6, 8}

"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. In this, her second

confinement, pains supervened a fortnight before the full time. Three hours and a half after they commenced, and ere the first stage of the labour was completed, I placed her under the influence of the chloroform, by moistening, with half a tea-spoonful of the liquid, a pocket handkerchief, rolled up into a funnel shape, and with the broad or open end of the funnel placed over her mouth and nostrils. In consequence of the evaporation of the fluid, it was once more renewed in about ten or twelve minutes. The child was expelled in about twenty-five minutes after the inhalation was begun. The mother subsequently remained longer soporose than commonly happens after ether. The squalling of the child did not, as usual, rouse her; and some minutes elapsed after the placenta was expelled, and after the child was removed by the nurse into another room, before the patient awoke. She then turned round and observed to me that she had "enjoyed a very comfortable sleep, and indeed required it, as she was so tired but would now be more able for the work before her". . . . In a little time she again remarked that she was afraid her "sleep had stopped the pains". Shortly afterwards, her infant was brought in by the nurse from the adjoining room, and it was a matter of no small difficulty to convince the astonished mother that the labour was entirely over, and that the child presented to her was really her "own living baby"."

Simpson was showered with honours. In 1841 he was elected president of the Edinburgh Obstetric Society at the age of 30, an office he held for the next 17 years. In 1847 he was appointed physician to Queen Victoria in Scotland and three years later was invited to become a member of the staff of the Edinburgh Royal Infirmary, a rare honour for an obstetrician at that time. He was awarded the Order of St Olaf by the King of Sweden, the Monthyon prize of the French Academy of Medicine, and honorary doctorates by Oxford and Dublin. Academies and medical societies from all over the world honoured him. In 1866 he was created a baronet, the first received by a doctor practicing in Scotland, and in 1869 he was granted the Freedom of the City of Edinburgh.¹⁻⁴

In 1870 Simpson started to suffer from angina and shortness of breath. He made his will, gathered his family around him, and on 6 May 1870 died peacefully in his home, 52 Queen Street. Two thousand mourners followed the cortege to Warriston Cemetery where he was buried, while 50 000 citizens lined the route. His wife, Jessie Grundlay, whom he had married in 1839, died a few weeks later. They had had nine children. Their son Walter succeeded to the baronetcy, while Alexander Simpson, his nephew, followed Sir James as the next professor of midwifery. A statue was erected to Simpson in Princes Street and the Simpson Memorial Pavilion was built with subscriptions raised by his friends. The family had declined an offer for him to be buried in Westminster Abbey. Instead a bust of him was raised there in St Andrew's chapel with the words:

"To whose genius and benevolence the world owes the blessings derived from the use of chloroform for the relief of suffering".

REFERENCES

- 1 **Croom H.** Sir James Simpson's influence on the progress of obstetrics. *Edinburgh Medical Journal* 1911;6:523-33.
- 2 **Hart DB.** James Young Simpson. An appreciation of his work in anaesthesia and some of his outstanding papers. *Edinburgh Medical Journal* 1911;6:543-53.

- 3 **Coues WMP**. Sir James Y Simpson (1811–1870). The prince of obstetricians. *N Engl J Med* 1928;**199**:221–4.
- 4 **McGowan SW**. Sir James Young Simpson, Bart. 150 years on. *Scot Med J* 1997;**42**:185–7.
- 5 **Simpson JY**. Priestley WO, Storer HR, eds. *The obstetric memoirs and contributions of James Young Simpson, M.D., F.R.S.E.* Edinburgh: Black, 1855.
- 6 **Speert H**. James Young Simpson and his obstetric forceps. In: *Obstetric and gynecological milestones*. New York: MacMillan Co, 1915:497–502.
- 7 **O'Dowd MJ**, Philipp EE. *The history of obstetrics and gynaecology*. London: Parthenon Publishing Group, 1994.
- 8 **Simpson JY**. Discovery of a new anaesthetic agent, more effective than sulphuric ether. *Lancet* 1847;**2**:549–51.

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