Ether day: an intriguing history

Air Cmde Ravindra Chaturvedi*, Col RL Gogna (Retd)[†]

MJAFI 2011;67:306–308

“Ether Day,” Friday 16 October 1846 marks the first successful demonstration of the inhalation of ether vapour as a means of overcoming pain of surgery by the dentist William Thomas Green Morton (1819–1868) at the Massachusetts General Hospital in Boston USA. Morton did not “discover” anaesthesia, nor was he the first person who attempted to relieve surgical pain by administering ether or any other drug by inhalation route. But he was the first person who with personal inspiration and conviction effectively administered the right agent, before the right audience, in the right place, at the right moment in history and ensured that the news of his success spread all over the world. He revolutionised surgical practice. It is not surprising then that the epitaph on his tombstone reads.^{1,3,6}

“Inventor and Revealer of Inhalation Anesthesia: Before Whom, in All Time, Surgery was Agony; By Whom Pain in Surgery was Averted and Annulled; Since Whom, Science has Control of Pain.”

We admire pioneers and inventors. We like things simple. It is easy but rather simplistic to believe that inventions spring out fully formed from the mind of the inventor. Specific advances in science often attributed to one person do not happen due to one person's actions alone but arise from the climate of opinion and knowledge prevalent at that time.¹

Every invention and new discovery has a story and some stories like the discovery of inhalational anaesthesia are so good, so full of intrigue, treachery, tragedy and comedy that it makes a wonderful subject for reading. The circumstances and events leading up to and following the “Ether Day” are dramatic and the cast is full of intelligent, sometimes foolish, scandalous, generous, grand, and greedy characters.

The story of Inhalational Anaesthesia starts from ether that was first synthesised in 1540 by Valerius Cordus and, who called it “sweet oil of vitriol” (oleum dulcevitrilioli) and noted some of its medicinal properties. Nitrous oxide, discovered by Priestley in

1772 was known always as “laughing gas.” The euphoric properties of the gas were well known and Sir Humphry Davy of England had speculated about its possible use in surgery as early as 1800. Yet both nitrous oxide and ether were used as nothing but an entertaining intoxicant till middle of 19th century. There is no good answer to the puzzle of why it took physicians so long to banish pain from their surgeries. It may have been largely that the jolly highs produced by ether and nitrous oxide obscured any potential for practical use. For a small fee, balloons filled with nitrous oxide would be made available to the guests to take a snort and then more money would be charged for exhibiting the frolics of the intoxicated to an audience. Samuel Colt used the money from such a venture to start his revolver factory. In 1844 Gardener Quincy Colton, a doctor turned exhibitor, brought laughing gas to Hartford where a local dentist, Horace Wells (1815–1848) tried it on 10 December 1844 and according to his wife made himself ridiculous in public assembly. A friend of Wells, Samuel A. Cooley got intoxicated, went berserk on stage and banged up his knees against a settee but felt nothing despite a bleeding knee until the gas wore off. Wells made the connection from stage amusement to clinical tool, and, on 11 December 1844 inhaled nitrous oxide from an oil-silk bag provided by Colton and had his dental partner John M Riggs pull out a troublesome tooth. After waking, Wells proclaimed, “It is the greatest discovery ever made. I didn't feel so much as the prick of a pin!”

Wells learnt from Colton how to make nitrous oxide and after successfully using it on some of his patients he was ready to announce his discovery to the Medical fraternity. He approached John Collins Warren, a leading surgeon, who arranged for a lecture demonstration at the Massachusetts General Hospital in Boston in January 1845. Unfortunately, during the demonstration the gas bag was removed early and the patient cried out before the tooth was extracted. Wells was booed out amidst cries of “humbug.” A broken man, Wells returned to Hartford, suffered a debilitating illness followed by a mental depression that was exacerbated by the controversy that followed Morton's successful demonstration on Ether Day. He experimented with chloroform, which was an effective anaesthetic but more dangerous than ether, and became addicted to it. Arrested for throwing acid onto prostitutes while he was chloroformed, Wells killed himself in jail.

It was in 1842 that the then 23-year-old Morton met Horace Wells for the first time in Hartford. Before that time, he had tried his hands at business in the cities of Baltimore, St. Louis, and Cincinnati. He would forge letters of recommendation, buy goods on credit, sell them, and abscond with the money to the

*Professor & Head, Department of Anaesthesia & Critical Care, AFMC, Pune – 411040, [†]Associate Professor, Department of Anaesthesiology, School of Medical Sciences and Research, Sharda University, Greater Noida, UP.

Correspondence: Air Cmde Ravindra Chaturvedi, Professor & Head, Department of Anaesthesia & Critical Care, AFMC, Pune – 411040.
E-mail: chaturravi@gmail.com

doi: 10.1016/S0377-1237(11)60098-1

next place. He joined the newly opened Baltimore College of Dentistry but left without obtaining a diploma. Morton then decided to settle down and become a dentist under Wells' tutelage. He learnt Wells' advanced techniques in prosthetic dentistry and moved to Boston.

From here on the tangled tale of attribution becomes impossible to comprehend completely. He met Charles T Jackson, a chemist and geologist, who later maintained that it was he who suggested the use of ether first for dental extractions. Morton asserted that he had experimented with ether on animals beforehand and insisted that, in September 1846, he extracted a tooth from a patient under ether who never even realized the procedure had been done. The story is further complicated by a competing claim by Dr. Crawford Long of Georgia who used ether to remove a swelling from a patient's neck in 1842.^{1,4,6}

Morton wanted to make money from his "invention" of ether and did what no physician ever did in those days: he patented it. But Morton could not make it pay. He tried to market a patent concoction called Letheon, a mixture of ether and oil of orange, but everyone guessed that it was only the ether that worked, and so the patent was useless. There was a tradition in Europe that those who had granted boons of science to humanity would be rewarded by generous sums of money; America had no such tradition. To the end of his life, Morton vigorously petitioned Congress for \$100,000 to recompense his benevolence. Jackson learned to despise him and dug up the dirt on his youthful escapades. Jackson and Wells both claimed to have made the basic discovery and opposed any monetary award for Morton. There is no doubt that both Jackson and Wells had helped Morton in his pursuits but selfishness and greed prevented him from acknowledging their role.^{2,4}

The saga of discovery of inhalation anaesthesia ended in tragedy for all the major players. Wells committed suicide. Jackson never got the recognition he was sure he deserved for the invention of ether, which only compounded the bitterness he felt about his belief that he had also given Morse the idea for the telegraph. He spent the last seven years of his life in an asylum. Indeed, Morton rightly got medals and fame for what he had done, but it never made him rich.^{3,6}

Despite the personal disappointment Morton deserves credit for having made a major contribution to the way surgery is performed today. Discovery of inhalation anaesthesia was the most important medical discovery of the 19th century. It was largely due to Morton's efforts to get recognition for his deed that the news of painless surgery spread to entire Europe and even India soon after the Ether Day. On 19 December 1946 the first ether anaesthesia was administered in London.¹

The news of successful ether anaesthesia in Boston reached India in the second week of March and a week later on Monday 22 March 1847, ether was administered in the Medical College Hospital, Calcutta, under the supervision of Dr. O'Saughnessy, the surgeon. The first chloroform anaesthesia in India was administered on 12 January 1848 (Chloroform was first used by Simpson in Edinburgh UK, on 15 November 1847). Interestingly, David Waldie, a chemist who has been credited for

introducing chloroform in clinical anaesthesia came to Calcutta in 1853, started his chemical company, and lived there till his death in 1889.⁵

With use of anaesthesia came the reports of anaesthetic deaths and the question of anaesthetic safety. In 1880 Glasgow committee concluded that chloroform was more dangerous than ether. The Edinburgh school thought chloroform deaths were due to respiratory failure while the London school attributed it to cardiac failure. By 1888 Edward Lawrie in Hyderabad had administered chloroform anaesthesia to 40,000 people without a single death. He formed the "First Hyderabad Chloroform Commission." After extensive experimentation on 141 animals he concluded that, "Chloroform may be given with perfect safety and without any fear of accidental death, if only respiration is carefully attended to." This was contrary to the accepted belief in London and so the "Second Hyderabad Chloroform Commission" was formed to which a representative from Lancet was sent. The Nizam of Hyderabad offered £1,000 for a commission consisting of Lauder Brunton, Lawrie and Rustomji. Study was carried out on 430 animals (dogs, monkeys, horses, goats, rats, rabbits, and cats) and 54 humans. The conclusions of the "First Hyderabad Commission" were validated. This study was undertaken at the Afzalganj Hospital in Hyderabad where the Osmania Hospital is now located. Incidentally the first woman anaesthetist in India, and perhaps the world, Roopabai Ferdunji was working under Edward Lawrie in Hyderabad in 1889; she later went to Edinburgh for further studies.⁵

The early anaesthetists in second half of the 19th century were concerned only with relief of surgical pain and safe recovery from the effects of the agents used. Most surgeries those days were body surface surgeries but the introduction of antisepsis and then asepsis led to a dramatic expansion of scope of surgery in the 1880s. This necessitated a major change in anaesthetic techniques and led to new discoveries like the use of local anaesthetics for regional anaesthesia, use of muscle relaxants, new safer inhalation agents and intravenous anaesthetics. Advances in monitoring techniques and better understanding of issues related to pain and consciousness have made anaesthesia so safe that today no patient is too ill, too young or too old to undergo any modern surgical intervention. The concept today is of balanced anaesthesia where state of anaesthesia is no longer dependent on a single anaesthetic agent but a wide array of pharmacological agents that provide the components of analgesia, amnesia, muscle relaxation, reflex suppression and hypnosis, with minimum side effects and maximum benefits. Anaesthesiologist today has moved out of the operation and has become indispensable part of intensive care units, trauma and resuscitation teams, pain clinics, cardiac catheterisation laboratories, and interventional and other radiological suites.

Anaesthesiology has come a long way from that fateful day in 1846 when the first significant step was taken. The journey of anaesthesiology is full of new discoveries and each discovery is linked with tales of trials and tribulations of its architects. It is humbling to note that most great discoveries have been made by ordinary men who dared and did extraordinary feats

despite their fears and failings. We owe the pain-free and safe surgery to these early pioneers who took the initial daring steps often at immense personal cost. Morton perhaps was not the “Inventor” but certainly was the “Revealer” of inhalation anaesthesia. Modern medicine will remain ever grateful to Morton and other unsung heroes who gave us the boon of anaesthesia.

REFERENCES

1. Boulton TB, David JW. The origins of modern anaesthesia. In *Wylie & Churchill-Davidson's A Practice of Anaesthesia* 6th ed. Healy TEJ, Wylie CPJ, eds. London: Edward Arnold, 1995:3–35.
2. Wolfe RJ. *Tarnished Idol: William Thomas Green Morton and the Introduction of Surgical Anaesthesia: A Chronicle of Ether Controversy* San Anselmo, California: Norman Publishing, 2001.
3. Toski JA, Bacon DR, Calverley RK. The history of anesthesiology. In: *Clinical Anesthesia* 4th ed. Barash PG, Cullen BF, Stoelting RK, eds. Philadelphia: Lippincott Williams & Wilkins, 2001.
4. Fenster JM. *Ether Day: The Strange Tale of America's Greatest Medical Discovery and The Haunted Men Who Made It* New York: Harper Collins, 2001.
5. Divekar VM, Naik LD. Evolution of anaesthesia in India. *J Postgrad Med* 2001;47:149–152.
6. Atkinson RS, Rushman GB, Lee JA. History of anaesthesia. In: *A Synopsis of Anaesthesia* 10th ed. Bristol: IOP Publishing, 1987:1–38.