THE FIRST DEATH FROM CHLOROFORM AT THE TORONTO GENERAL HOSPITAL

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CHLOROFORM was popularized for use in clinical practice by James Young Simpson, it had been used successfully, earlier, by William Lawrence in London¹ The Scot, following up the suggestion of David Waldie, first used the agent on November 4, 1847 On November 10, 1847 his first article on the subject was published²

This is an era when private investigators, ethical pharmaceutical companies, and government agencies are concerned with devising increasingly complex and careful experiments to ensure the safety of any new agent proposed for general use In the light of this it is amusing to read Simpson's confident remarks written less than six days after he first used chloroform "I am enabled to speak most confidently of its superior anaesthetic properties, having now tried it upon upwards of thirty individuals"

It was not long, however, until the first fatality, the first in what was to become a flood, occurred On January 28, 1848, Hannah Greener, a healthy girl of fifteen, who was to have a toe-nail removed, died under chloroform anaesthesia

This first fatal case served to exemplify not only the peculiar dangers of chloroform anaesthesia, which so mystified the early, and indeed later, anaesthetists, but also many of the pitfalls which, through bitter experience, they eventually learned to avoid Hannah Greener was young and healthy and the operation to which she submitted was a minor one At the same time she was extremely apprehensive and her stomach was full of food A moderate amount of chloroform (about one teaspoonful) was poured on to the handkerchief, but this was possibly held in such a way that air was excluded³

By 1863 the number of cases in which death could be positively assigned to the inhalation of chloroform had reached the formidable total of 123⁴ In that year the first death attributable to the use of chloroform as an anaesthetic occurred at the Toronto General Hospital According to newspaper reports at the time, it was the second death in Canada due to chloroform

So far as can be determined, chloroform was first used for surgery in Canada in Quebec City on January 24, 1848 In midwifery it was first employed by Dr A F Holmes on January 25, 1848 Thus, it appears that two deaths could be attributed to the use of the agent in 15 years of usage This record is not, however, as impressive as might at first appear In those pre-Listerian days relatively few operations were performed—usually only those that were absolutely necessary The total use of chloroform at the Toronto General Hospital, for example, amounted to fewer than 2000 cases when their first death occurred According to Sykes⁶ death followed the administration of chloroform in 1 of

2500 to 3000 cases, no matter where the observations were made and no matter who administered the anaesthetic

In the nineteenth century the anaesthetist, *per se*, was almost unknown. Generally, once surgery had been decided upon, the surgeon would relegate the task of anaesthesia to whoever was available and willing. Training or interest were not prerequisites. Thus, in the case we are considering, Dr James Bovell, who gave the anaesthetic, commented that "I was requested by Dr Hodder (on the 13th inst) to administer chloroform to the patient, Richard Humphreys, on whom he was about to operate." It is apparent, then, that the arrangement was a last-minute one, as Dr Hodder was "about to operate," when he asked Dr Bovell to administer the anaesthetic.

The account we have available to us is a newspaper report⁷ of the inquest held. Let us see what Dr Bovell has to say about the event.

There seemed to be nothing in his appearance to contraindicate its [chloroform's] use. His pulse was regular, strong, though quickened by the excitement produced by the advent of an operation. I used the usual means adopted in such cases, viz the towel, conically folded, and wetted with about two drachms of chloroform. Shortly after the inhalation, I noticed that the extensor muscles of the upper and lower extremities were convulsed, as well as the muscles of the neck. This state passed away, and he seemed to be breathing quietly under the influence of the agent. At this time Dr Hodder commenced the operation. Consciousness seemed to be returning. The towel was again wetted with about $\frac{1}{2}$ drachm, and again applied as before. Almost immediately after this spasmodic twitching of the mouth came on, the countenance being extremely pale. I withdrew the towel and ammonia was applied to the nostrils, soon after which respiration seemed to return, although in a laboured degree. I then called to Dr Hodder and said "Finish your operation quickly." The respiration almost immediately after this ceased again, attended by spasms of the muscles of the face and rolling of the eye-balls, the face becoming almost immediately turpid, the veins about the neck being very full and distended. Cold water was dashed on the face. I then begged Dr Gardiner to open the jugular vein, which he at once did, proposing thereby to relieve the pressure from the brain. I applied the poles from the galvanic battery to the nape of the neck, bringing it round toward the point to influence the phrenic nerve, while the pole was applied to the pit of the stomach, thus succeeding in keeping up artificial respiration for some time. The whole, however, proved ineffectual.

Subsequent evidence given at the inquest indicated that some apprehension was felt by the patient before his operation. He remarked to a fellow-patient that he "was prepared to die, as all should be who got operated on under the influence of chloroform." He expressed similar sentiments to his wife. So at least one of the undesirable conditions discussed in reference to Hannah Greener was present in this case. We don't know whether or not his stomach was full, but since the consultation which produced the decision to operate was not held until on into the morning of the day of surgery, it is certainly possible that he did have his breakfast, at least. We do know that the patient was young and, aside from the local condition, a tumour of unspecified type, healthy.

The medical evidence given in this case, by Dr E M Hodder, Dr W R Beaumont, Dr King, Dr Lawlor, Dr Henry Wright, Dr W T Aikins, and Dr Gardiner, was to the effect that the patient was considered a good surgical

risk Chloroform was administered competently and in the usual way, and resuscitative measures were attempted promptly and in accordance with the best of current practice

The jury, "composed of six men from amongst the intelligent patients in the hospital and six from the neighbourhood," returned as its verdict that the deceased came to his death from cerebral apoplexy, induced by chloroform, which they believed was properly administered, and that the best means were adopted for his resuscitation

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