AWARENESS DURING SURGERY UNDER ANAESTHESIA

(A Case Report)

Lt Col PM VELANKAR*

ABSTRACT

A case of intra-operative awareness due to fault in anaesthetic apparatus is reported. This report highlights the importance of routine checking and periodic maintenance of anaesthetic apparatus to avoid such an occurrence.

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KEY WORDS : Awareness during anaesthesia.

Introduction

Awareness during general anaesthesia is defined as the ability to recall, with or without prompting any events which occurred during the period at which it was thought the patient was fully unconscious [1].

It is common practice to use balanced anaesthesia technique with controlled ventilation for all major surgical procedures. During surgery it is incumbent upon the anaesthesiologist to ensure that his patient is actually inhaling the intended anaesthetic mixture. It is his responsibility to maintain adequate depth of anaesthesia during surgery so that awareness does not occur and surgery is a painless and pleasant experience for the patient. However, there have been sporadic reports of patients who although apparently anaesthetised adequately, felt pain or described conversations or incidents which undoubtedly occurred during operation [2,3]. The patient might be awake during operation when anaesthetic technique involving large doses of muscle relaxants are used [4].

Here is a case report of awareness which occurred during surgery under general anaesthesia in a young healthy individual due to defect in the anaesthetic apparatus.

CASE REPORT

A male patient aged 27 years, a driver by trade, was posted for repeat lumbar laminectomy under GA for prolapsed intervertebral disc L V [4-5]. The patient was in ASA grade I weighing 63 kg. All the routine laboratory investigations, ECG and X-ray chest were normal.

He was premedicated with Tab diazepam 10 mg orally 2 hours prior to operation and injection morphine 7.5 mg and atropine 0.6 mg intramuscularly one hour prior to surgery. In the operating room intravenous line was established with Ringer lactate and just before induction of anaesthesia, 10 mg diazepam was injected intravenously. Anaesthesia was then induced with 300 mg of thiopentone followed by pancuronium 7 mg intravenously to facilitate tracheal intubation. The patient was put in prone position for operation. Anaesthesia was maintained with nitrous oxide 5 litres/min and oxygen 2.5 litre/min using Mapleson D breathing system and 1.5 mg incremental doses of morphine intravenously as and when required (total dose 7.5 mg). The patient's respiration was controlled manually using pancuronium in small doses - total dose 10 mg.

At the end of operation, the effect of pancuronium was reversed with atropine 1.3 mg and neostigmine 2.5 mg intravenously after turning the patient supine. After thorough oropharyngeal toilet, extubation was done.

Immediately after extubation the patient started shouting and complained spontaneously that he experienced pain throughout the operation. He also said that he understood every thing and could hear complete conversation between the surgeons and other attendants. His description about all the events and conversations during operation were well supported by all members of the surgical team present in the operation theatre. As the patient was very apprehensive and in agony due to pain, he was immediately treated with intravenous diazepam 10 mg and morphine 6 mg which made him quiet.

* Reader, Dept of Anaesthesiology, AFMC, PUNE - 40.

It was found that there was nothing wrong with the anaesthetic technique used and dosage of various drugs administered to the patient during operation. Therefore, we checked our Boyle's anaesthesia machine for any defect. First we checked all common sites on the machine for leaks of oxygen and nitrous oxide. Then the oxygen cylinders on the machine were opened but the oxygen flow meter was kept closed. Then we dipped the distal end of the corrugated tubing of Magill circuit of the machine in water when gas was noticed bubbling through water. Since these bubbles of gas were thought to be due to leak in emergency oxygen by-pass tap of the Boyle's machine, it was verified by carefully listening for the leak by keeping the ear close to the oxygen by-pass tap when a hissing sound could be heard due to oxygen leakage through this oxygen by-pass tap into the reservoir bag. This oxygen leak was immediately sealed by applying adhesive tape tightly over the oxygen by-pass tap. The same anaesthetic machine was subsequently used to anaesthetise other patients without any problem of awareness in them.

Discussion

Awareness during surgery under general anaesthesia is not a new problem. A number of patients undergoing surgery have experienced pain or awareness of activities around them during nitrous oxide, oxygen, relaxant anaesthesia. Awareness may be unexpected or inexplicable. Its incidence and causes may vary [5,6]. Faulty anaesthetic equipment (e.g. inaccurate flow meters or fault in the oxygen by-pass tap of the anaesthesia machine) is one of the important causes of intraoperative awareness.

In this case pre-anaesthetic medication, anaesthesia technique and doses of various drugs used to maintain anaesthesia were adequate as we use routinely in other major operations. But unfortunately, oxygen was leaking continuously through the emergency oxygen by-pass tap of Boyle's machine into the reservoir bag diluting the inspired anaesthetic mixture of nitrous oxide - oxygen. The same diluted anaesthetic gases were being inhaled by the patient throughout the opera-

tion even though the flowmeters on the anaesthetic machine were indicating the correct flows of O₂ and N₂O. Our patient was probably inhaling almost 100% oxygen instead of anaesthetic mixture of nitrous oxide and oxygen. This leak in the oxygen by-pass was noiseless so could not be detected throughout the anaesthetic management. In this case signs of inadequate depth of anaesthesia such as hypertension, tachycardia or bradycardia, sweating and lacrimation were lacking.

The patients under light anaesthesia may recall conversation heard in the operation theatre. So conversation during operation should be in low tones and patient's ears should be plugged with cotton.

In this case, leak in the emergency oxygen by-pass tap of a faulty Boyle's anaesthetic apparatus was the cause of awareness during surgery. It is therefore suggested that all anaesthetic machines should be checked every day before commencement of the operation list. All the anaesthetic equipment should also be serviced periodically. These precautions will prevent occurrence of awareness due to this casue.

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