THERAPEUTIC MISADVENTURE OR MEDICAL NEGLIGENCE?

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Introduction

The process of medical care was brought under the purview of the consumer protection act (CPA) by the parliament in December 1986. Though the act was enforced in September 1987, it came under severe criticism from the medical profession, individuals and organizations alike. Hence, the act was held in abeyance and subjudice till November 1995 when the Supreme Court ruled that providing medical care on payment does fall within the ambit of the expression "Service" as defined in section 2(1) (O) of CPA. Enforcement of CPA is believed to ensure quality service and better consumer satisfaction. The medical professionals have always held that unlike consumer durables it is difficult to predict behaviour of a human being when subjected to medical care. Therefore, most of the times when a doctor is brought before a court of law for being negligent, immunity is sought by attempting to prove the contrary under the garb of unpredictability. However, more often than not here is a very thin line between a misadventure and a negligence. We report here a death during anaesthesia and leave it to the discerning reader to decide whether the catastrophe was a misadventure or a negligence on the part of the anaesthesiologist.

Case Report

A 32-year-old female patient was scheduled to undergo elective cholecystectomy for cholelithiasis in a well equipped medical referral centre. She was assessed to be in American Society of Anaesthesiologists (ASA) Gr I and all relevant investigations including plain radiograph of the chest did not reveal any abnormality.

On the day of surgery, after induction of anaesthesia her

trachea was intubated. However, within minutes of connecting the tube to the ventilator, she was diagnosed to have sudden cardiac arrest. Resuscitative measures were immediately undertaken and external cardiac compression was instituted, though the cause of the cardiac arrest could not be ascertained till then. Since external cardiac compression seemed inadequate, the surgeon performed a left sided thoracotomy for internal cardiac compression. When the thorax was opened, plenty of air bubbles came out of the pleural cavity. A needle inserted in the right pleural cavity also confirmed the presence of air and an intercostal tube drainage was placed. However, all these efforts did not yield a positive outcome and the patient could not be revived.

A medicolegal autopsy was carried out subsequently. The deceased had a well developed healthy body and had a surgical thoracotomy with fracture of the third, fourth and fifth ribs on the left side. A venesection wound in the right cubital fossa and a surgical wound in the right side of the chest for intercostal tube drainage were present. Surgical emphysema was noted to be present in the neck and chest. Both lungs were collapsed and about 50 mL of blood was found to be present in the pericardial cavity. Ventricular myocardium was partially contused possibly because of internal cardiac compression. The brain was oedematous and meninges were congested. The viscera was preserved for chemical analysis. In the opinion of the autopsy surgeon, death occurred as a result of asphyxia following respiratory failure, along with injuries to the heart.

The clinical profile and the findings of autopsy when interpreted and correlated in proper perspective, indicate that there was sudden rise in airway pressure causing barotrauma, tension pneumothorax and collapse of both the lungs. All these events led to rapid development of cardiac arrest and death of the patient.

Discussion

Pneumothorax is a recognised hazard of intermittent positive pressure ventilation (IPPV), known to the medical community as early as 1828. The incidence of iatrogenic pneumothorax ranges from 10 to 20 per cent and has increased considerably in the past decade as a result of prolonged

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ventilation. High airway pressure (Paw) can lead to pneumothorax by either causing intrapulmonary rupture with retrograde perivascular dissection of air [1] or by causing injury to visceral pleura in presence of a subpleural bleb [2]. The former type called barotrauma is more common during anaesthesia, however, subpleural blebs are often seen in healthy, asymptomatic females and can be the cause of spontaneous pneumothorax even in the absence of any rise of Paw [2]. In cases of intrapulmonary rupture, air escapes in perivascular area, mediastinum and pleural cavity.

There are several reasons of increase in Paw which include failure of regulation to produce cylinder pressure [3], inadvertant activation of oxygen flush valve, obstruction to the outflow of gases because of defective expiratory valve [4], malfunction of pressure relief valve if ventilator is in use [5] or obstruction in the scavenging system. Thus equipment dysfunction is by far the commonest cause of high Paw. It therefore follows that a critical check of anaesthetic equipment and vigilant clinical monitoring is mandatory to avoid or to detect any rise in Paw. Even though, safe limits of time and pressure have not been defined, it is reported that phasic pressures of less than 25 torr are reliably safe, pressures 30-80 torr are potentially dangerous and those above 80 torr are definitely hazardous.

The entire sequence of events brings up the question whether it was medical negligence or a therapeutic misadventure. A misadventure is an incident over which the physician has no control and negligence includes acts of commission (doing something wrong) or acts of omission (failure to do something).

It may well be reasoned that barotrauma and pneumothorax are well known anaesthetic hazards and therefore the anaesthesiologist should have exercised due care by promptly diagnosing the cause of cardiac arrest and taking corrective steps. It may further be pleaded by the plaintiff that the hospital management also failed to provide a properly functioning equipment which could have avoided the incident (corporate negligence).

On the contrary, several arguments can be offered which project the event as a therapeutic misadventure. Firstly, pneumothorax is a distinct pos-

sibility even at low Paw ranges encountered clinically, as no pressure limit is considered to be absolutely safe [6].

Most of the machines including ventilator and reservoir bag, are able to let off excess air only if Paw exceeds 60 torr and it is not surprising that complication may occur prior to this level. Secondly, pneumothorax can be mimicked by several conditions like anaphylaxis, pulmonary embolism, bronchospasm or anaesthesia induced myocardial depression. A case has been reported in literature where pneumothorax has been recognised only when thoracotomy was done to perform cardiac compressions, as happened in this case [7]. Thirdly, it may be difficult to disprove the claim of the anaesthesiologist that he did exercise a reasonable degree of skill and care while responding to the adverse event. Cardiopulmonary resuscitation was promptly instituted and an intercostal tube drainage was also established, both being in consonance with current practice. The mortality following pneumothorax is indeed very high and is reported to be 16 per cent despite timely intervention [8]. In addition a thorough preanaesthetic checkup of the equipment is not a measure of or predictor of its troublefree performance subsequently.

A therapeutic misadventure can be defended in a court of law. However, negligence is indefensible. Negligence as defined by the law, is simply the failure to meet the standard of care [9]. A doctor (anaesthesiologist) can be considered to be negligent only if he did something (either commission or omission) that an anaesthesiologist of ordinary skill and care and diligence would not have done under the same circumstances.

As is evident from the foregoing discussion, it is often difficult to separate misadventure from negligence and opinions are likely to be different even amongst the medical community, to say nothing of the judicial powers that be. The debate - "Misadventure or negligence" would seem to continue. There is a definite need to upgrade the role of an expert testimony in cases being tried under CPA. Even though the burden of providing the proof of negligence lies with the plaintiff, it is feared that the court is likely to overlook some complicated yet vital medical issues, in the

absence of an adequate representation from the medical community in the composition of the consumer protection court.

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