香 港 醫 務 委 員 會

The Medical Council of Hong Kong

DISCIPLINARY INQUIRY
MEDICAL REGISTRATION ORDINANCE, CAP. 161

Dates of hearing: 16 February 2011 (Day 1), 17 February 2011 (Day 2) and 10 April 2011 (Day 3)

Defendant: Dr CHAN Edmund Bernard (陳邦石醫生)

1. The charges against the Defendant, Dr CHAN Edmund Bernard, are that:

> "On 26 August 2006, he, being a registered medical practitioner, disregarded his professional responsibility to his patient Miss Y ("the Patient"), in that:
>
> (a) he failed to provide adequate general anaesthesia to the Patient during the operation at St. Teresa's Hospital;
>
> (b) he failed to take adequate steps to ensure that the anaesthetic machine would function properly during the operation.
>
> In relation to the facts alleged, he has been guilty of misconduct in a professional respect."

Facts of the case

2. The Patient had acute abdominal pain in the evening of 25 August 2006. She was taken to the Accident and Emergency Department of a public hospital, but was discharged the same evening as she intended to seek treatment from her company's doctor. At around noon on 26 August 2006, she was admitted to a private hospital in preparation for laparoscopic operation scheduled for 8 p.m. on the same day.

3. The Defendant was the anaesthesiologist for the operation. Shortly before the operation, he performed a brief pre-anaesthetic assessment on the Patient

in the waiting area outside the operating theatre and considered the Patient to be in general good health and her general condition was stable. He planned to use Desflurane as the anaesthetic agent because he considered that it had a more favourable profile for the Patient and the Patient would emerge from anaesthesia faster. However, upon entering the operation theatre, he noticed that only a Sevoflurane vaporizer was mounted on the anaesthetic machine, but not a Desflurane vaporizer. He then sent the nurse to look for a Desflurane vaporizer.

4. Meanwhile, he conducted a pre-anaesthetic check to ensure that the anaesthetic machine with the Sevoflurane vaporizer was functioning properly. He was satisfied that everything was in good order. As the nurse had not yet returned and Sevoflurane was also suitable for the Patient, he decided to commence induction of anaesthesia. After he had commenced induction of anaesthesia, the nurse came back with a Desflurane vaporizer and mounted it onto the anaesthetic machine. He then connected the ventilator tubing to the endotracheal tube and switched on the ventilator to deliver Desflurane to the Patient.

5. At the beginning of the operation, the Defendant noticed that no Desflurane was detected by the end-tidal gas analyser. He tried to figure out what had gone wrong, and considered that it must be a problem with the gas analyser. About 25 minutes later, the surgeon alerted the Defendant that there was slight movement of the Patient's abdominal muscles which indicated insufficient anaesthesia. The Defendant immediately reached out to the Desflurane vaporizer to dial up the Desflurane delivery. As he was dialling up the vaporizer, there was a slight click and the vaporizer sank slightly into the back-bar of the anaesthetic machine. He also added intravenous anaesthetics to deepen anaesthesia.

6. At one stage during the operation, the Patient felt that she was awake and heard the conversation of people in the operation theatre. She felt her abdomen being cut open and things moving inside her abdomen. She felt severe pain and then fainted. After the operation, she told the surgeon her awareness during the operation. The surgeon later relayed the information to the Defendant.

7. On 28 August 2006, the Defendant interviewed the Patient in the hospital. When the Patient told him her awareness during the operation, the Defendant

said that the Patient had "麻醉記憶" and told her to inform the anaesthesiologist in advance in future operations.

8. After the operation, the Patient suffered from insomnia and repeated memory of the painful experience, and cried whenever the memory came up.

9. The Desflurane vaporizer was subsequently found to be defective in that the locking lever had become loosened and the locking device could still be engaged even if the vaporizer was not correctly seated in an anaesthetic workstation. When incorrectly seated, there could be no or insufficient delivery of Desflurane during operation.

Council's findings

10. We have to state from the outset that proper anaesthesia requires proper planning from the beginning. Before an operation, an anaesthesiologist must plan the equipment and anaesthetic agents to be used, and make arrangement for such equipment and agents to be available in good time. Such planning and preparation should be done in good time, so that the functioning of the equipment can be checked properly. Such decision and preparation should not be left to the last minute, thus compromising the necessary checking procedures.

11. We bear in mind that the charges are not concerned with the propriety of the anaesthetic agent. Nor are they concerned with the propriety of changing to another anaesthetic agent.

12. From the evidence available after the event, it is obvious that the failure to provide adequate anaesthesia was the result of improper mounting of the Desflurane vaporizer on the anaesthetic machine.

13. It is not disputed that the locking lever of the vaporizer in question had become loosened, and the vaporizer could still be engaged even if it was not correctly seated. It is also not disputed that there had not been previous report of such malfunctioning for this type of vaporizer.

14. The Hong Kong College of Anaesthesiologists has issued technical guidelines for checking anaesthesia delivery systems in order to safely and reliably

induce and maintain anaesthesia, and to ensure that the systems will function correctly. While the guidelines are not rigid rules and non-compliance with the guidelines is not in itself professional misconduct, the guidelines are relevant for assessing whether the Defendant's conduct is proper.

15. It is important to ensure that the anaesthesia delivery system is functioning properly before being put to use, as any malfunctioning may have very serious consequence to the patient, even death. The guidelines are designed to ensure the integrity and effectiveness of the system and minimize the possibility of malfunctioning, although compliance with the guidelines is not an absolute guarantee of proper functioning. In respect of a matter with significant and serious implications for the safety of the patient, it is necessary to make all reasonable efforts to minimize the possibility of malfunctioning.

16. The question for us is whether the Defendant had done what was reasonably required in the circumstances, having regard to the safety of the Patient. The Defendant claims that the urgency of the situation and his concern for the Patient's anxiety required him to take immediate action to induce anaesthesia without waiting for return of the nurse to see whether a Desflurane vaporizer was available. In view of the stable medical condition of the Patient and the fact that the operation was scheduled to be performed 8 hours after admission, we see no such urgency. There was also no evidence that the Patient was anxious, nor was the matter put to the Patient in cross-examination. This point is relevant to our assessment of the reasonableness of his clinical decision, which led to an additional risk to the Patient.

17. The Defendant knew that after induction of anaesthesia to the Patient, he would not be able to perform a leak test for any other vaporizer mounted onto the anaesthetic machine subsequently. In the circumstances, he was taking an unnecessary risk to subsequently switch to another vaporizer which had not been tested in accordance with the guidelines. The Defendant considered that it was important and necessary to perform all the pre-anaesthetic check in the guidelines in respect of the Sevoflurane vaporizer. There was no reason for him to think that the same check was not necessary for another vaporizer subsequently mounted. He recognized that there was a risk of leakage but considered that the risk was small. Nevertheless, there was no necessity to take such risk.

18. All machines are susceptible to malfunctioning. Indicator and warning lights alone cannot be relied upon as conclusive indication that a system is functioning properly, particularly when there are contradictory indications within the system (in the present case, the green light of the vaporizer was lit but the end-tidal gas monitor showed no reading for Desflurane). In respect of detachable components in a gas delivery system, it is important to ensure that an air-tight mechanical connection is achieved. The leak test is designed for this purpose.

19. We note that there are a number of highly questionable features in the anaesthetic record, including but not limited to: (i) the Defendant wrote in the pre-anaesthetic assessment form that the operation was elective and encircled "ASA I" (which meant "normal healthy patient") without encircling "ASA E" (which meant "emergency"), but he said in evidence that it was in fact an emergency operation and the record was a mistake; (ii) the steady pulse rate in the record throughout the operation, which was contradictory to his evidence that there was an episode of significantly increased pulse rate; and (iii) there was no record of the significant and important event of lightening of the Patient. Although he has not been charged with failing to keep proper anaesthetic record, it is a matter relevant to his credibility.

20. Having considered all the evidence, we find that the Defendant had taken an unnecessary risk by switching to another vaporizer which could not be properly checked. We also find that there was no reason for the Defendant to assume that no end-tidal Desflurane concentration reading was due to a problem of the gas analyser. Upon noticing that no end-tidal Desflurane was detected, he should have taken prompt action to remedy the situation to prevent lightening of the Patient, instead of waiting for 25 minutes until the surgeon alerted him of movement of the Patient's abdominal muscles before deepening the anaesthesia. Although the Defendant claimed that he had taken various steps to check the vaporizer and the Patient to ascertain the cause of the absence of end-tidal reading for Desflurane, none of such steps had been recorded. If he had done so, we would expect that this would be documented in the anaesthetic record. We do not accept that he had done so.

21. Charge (a) covers the Defendant's conduct to provide anaesthesia to the Patient, starting from the assessment stage to the conclusion of the operation. The Defendant's conduct in (i) unnecessarily switching to the Desflurane vaporizer which could not be checked, and (ii) failing to take timely remedial

action, has fallen below the standard expected amongst registered medical practitioners. We are satisfied that this constituted professional misconduct. We find him guilty of charge (a).

22. We are satisfied that the Defendant's conduct in not properly checking the Desflurane vaporizer as an integral part of the anaesthesia delivery system has fallen below the standard expected. We are satisfied that this constituted professional misconduct. We find him guilty of charge (b).

Sentencing

23. The Defendant has a clear record.

24. We accept that the Defendant could have been induced by the "*operational*" indicator light and the engagement of the locking mechanism to wrongly believe that the Desflurane vaporizer had been correctly seated.

25. Nevertheless, failure to ensure proper functioning of the anaesthesia delivery system may have serious consequence to the safety of the patient. A doctor performing general anaesthesia must be particularly vigilant, as it is a matter of life and death for the Patient. In general anaesthesia, a patient is totally dependant on the skills of the anaesthesiologist and the functioning of the equipment.

26. While we do not know whether the lightening incident will have a long term effect on the Patient, the Patient has suffered from the painful experience and subsequent psychological problems.

27. Both charges arose from the same incident and are closely related. We consider that it is appropriate to deal with both charges by the same order.

28. Having regard to the gravity of the case and the mitigation, we order that the Defendant's name be removed from the General Register for a period of 6 months. We further order that the removal order be suspended for a period of 2 years, subject to the condition of satisfactory peer audit and supervision during the suspension period by a supervising doctor to be appointed by the Council on the following terms:-

(a) The audit and supervision should be conducted at least once every 6 months during the suspension period, with particular focus on the preparation for and administration of anaesthesia.

(b) The audit and supervision should be conducted without prior notice to the Defendant.

(c) The supervising doctor should be given unrestricted access to all relevant medical records and such places where the Defendant will practise which in the supervising doctor's opinion is necessary for proper discharge of his duty.

(d) The supervising doctor should report to the Council his findings during the audits and supervision in the 6th, 12th, 18th and 24th months. If irregularities are detected, such irregularities should be reported as soon as practicable.

Other remarks

29. The Defendant's name is included in the Specialist Register under the specialty of "Anaesthesiology". While it is for the Education and Accreditation Committee to consider whether action should be taken under section 20N of the Medical Registration Ordinance in respect of his specialist registration, we are of the view that this case is directly related to his specialty and reflects adversely on his specialist competence.

Prof. Felice Lieh-Mak, CBE, JP
Chairman, Medical Council