INTRODUCTION

Single coronary artery (SCA) is an extremely rare congenital coronary anomaly and its incidence is 0.024-0.066% in adults undergoing coronary angiography.1,2 Management of the patient with isolated SCA depends on clinical presentation. Asymptomatic patients are usually managed conservatively but patients with angina or acute coronary syndromes can undergo coronary interventions.3,4 This case report describes the anaesthetic management during surgical intervention in a patient with single coronary artery.

CASE REPORT

A 68-year-old woman was referred to cardiology outpatient clinic for risk assessment for general anaesthesia. She was known to have stress and urge incontinence along with hemorrhoids. She had one year history of palpitations and chest discomfort. These symptoms were described as intermittent, with or without exertion. Her cardiovascular risk factors included hyperlipidemia and family history of ischemic heart disease. She underwent a stress exercise treadmill test (ETT), which was equivocal (no electrocardiography changes but chest pains at high work load). A subsequent myocardial perfusion scan showed mild apical and peri-apical reversible ischemia, which was limited in the extent.

As she was awaiting surgical procedure under GA, therefore, a coronary angiography was performed, which showed a single coronary artery (SCA), arising from the ostium of the right sinus of Valsalva (Figure 1). The left coronary artery (LCA) arised from the right coronary artery (RCA) and divided into small circumflex (CX) and left anterior descending (LAD) branches. There was minor plaque disease of the coronary arteries but no significant flow limiting lesions requiring further interventions. A computerized tomography (CT) cardiac gated scan showed a single coronary artery arising from the right sinus of Valsalva (Figure 2). This immediately divided into the left and the right coronary arteries. The right was dominant and took the course within the atrioventricular (AV) groove. The LCA (Figure 3) passed behind the aorta before dividing into LAD and left CX artery.

She was managed conservatively and successfully underwent various surgical procedures including total abdominal hysterectomy, Burch colposuspension (twice) for urinary stress incontinence, intravesical botox injection for urge incontinence and haemorrhoidectomy for recurrent rectal mucosal prolapse. The various general anaesthetic agents used including halothane, thiopentone, suxamethonium, pancuronium, enflurane, fentanyl, propofol and isoflurane were used without any adverse clinical consequences. She remained well on 48 months follow-up.

Key words: Single coronary artery origin. Atypical chest pain. Angiography. Anaesthesia.
thiopentone, suxamethonium, pancuronium, enflurane, fentanyl, propofol and isoflurane were well-tolerated. She had no peri-procedure or postprocedural complications including cardiac events. She remained stable on 48 months follow-up.

**DISCUSSION**

Single coronary artery (SCA) is an extremely rare congenital coronary anomaly where a single coronary artery arising from a single coronary ostium. SCA is usually diagnosed incidentally during coronary catheterization, CT coronary angiography, magnetic resonance (MR), coronary angiography or on post-mortem examinations. SCA has been reported with other congenital cardiac malformations.

The clinical presentations depend on the anatomical course of coronary artery and vary from being asymptomatic to symptoms of angina, acute coronary syndrome or sudden cardiac death. Young people with SCA are particularly at risk of serious clinical consequences during or shortly after vigorous exertion.

There is still no consensus on the management of SCA. Coronaries with benign course should be treated medically, but surgery should be considered for patients with a more dangerous course (between the aorta and pulmonary trunk), who are at risk of sudden cardiac death. Patients with SCA have undergone percutaneous coronary interventions without clinical consequences. There is no clear data on the long-term outcome of these patients who are managed both medically and surgically.

This patient underwent various non-cardiac surgeries under GA without any clinical consequences. There were no specific precautions taken pre- or peri-procedure and there were no specific choice of anaesthesia agents. The best modality of investigation for the assessment and distribution of SCA is coronary CT angiography or coronary magnetic resonance (MR) angiography. These patients can have different anaesthetic agents used both via laryngeal mask or endotracheal intubations as in this case.

Congenital variation in the anatomy of coronary artery is uncommon. There is no consensus on the management of these patients, but ischemic heart disease can be treated conservatively or with percutaneous interventions. Coronary artery bypass may be considered for high-risk patients (anomalous course between aorta and pulmonary artery). Patients with SCA can undergo high-risk surgical procedures without any further increase in the peri-procedure risk or anaesthesia.

**REFERENCES**