Anaesthetic implications of right atrial myxoma in a premature infant

Sir,

Cardiac myxoma is a benign tumour and the most common primary cardiac tumour in adults; however, it is unusual in paediatric patients, with only 20% constituting right atrial myxomas (RAMs).[1]

A 3-month-old male baby, weighing 1.7 kg, presented to our hospital with tachypnoea while feeding and failure to thrive. The baby was born prematurely after 29 weeks of gestation. On examination, the baby looked emaciated [Figure 1]. A pansystolic murmur was present at the left lower sternal border on auscultation. Transthoracic echocardiography (TTE) revealed a large, homogenous, pedunculated mass (19 mm × 10 mm) attached to the interatrial septum (IAS) and protruding into the tricuspid valve (TV) causing tricuspid regurgitation (TR) [Figure 2]. Blood investigations revealed haemoglobin of 9.8 g/dL and platelet count of 78000/mm^3. Surgical removal of the RAM was planned because of the inability to gain weight.

On the day of surgery, the baby was shifted to the operating room, and a multiparameter monitor was attached. All preparations were done before induction of anaesthesia to go on emergent cardiopulmonary bypass (CPB) if required. General anaesthesia with endotracheal intubation was induced with intravenous midazolam 0.1 mg/kg, fentanyl 5 μg/kg and vecuronium 0.1 mg/kg through an already placed peripheral cannula. Induction agents were given slowly while

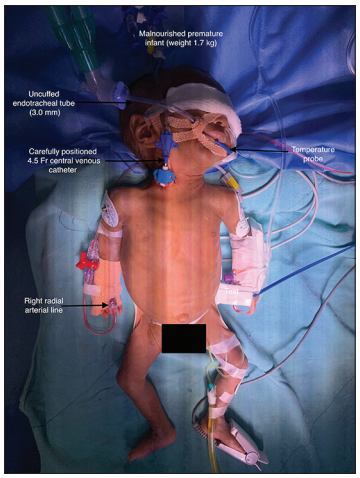

Figure 1: Intraoperative image showing an emaciated look of the child. Fr: French

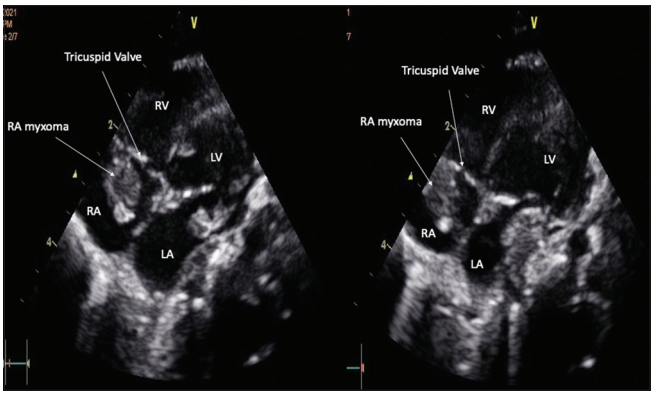

Figure 2: Apical four-chamber view on TTE showing RA myxoma. RA: right atrium, RV: right ventricle, LA: left atrium, LV: left ventricle

constantly monitoring the haemodynamics. Right radial arterial cannulation was done, and central venous catheter (CVC) was inserted carefully in the right internal jugular vein. Anaesthesia was maintained with 1.5% (v/v %) isoflurane and intermittent boluses of fentanyl and vecuronium.

After midline sternotomy and full heparinisation, CPB was instituted through aorto-bicaval cannulation. Superior vena cava (SVC) cannulation was done through a higher approach, and other manipulations near the right atrium (RA) were done gently to avoid embolisation of the tumour. Under deep hypothermic circulatory arrest (DHCA), the RA was opened, and the mass was excised completely. The baby was weaned off CPB with inotropic support of intravenous milrinone 0.5 μg/kg/min. After completion of the surgery, the patient was shifted to the paediatric intensive care unit and was extubated after 8 hours. Postoperative TTE showed an intact IAS with no TR or residual mass in RA.

RAMs usually present with breathlessness, cyanosis, feeding difficulty, and constitutional symptoms like fever, fatigue, anaemia, thrombocytopenia, malnourishment, and weight loss because of the release of interleukin-6 by RAM.[2] RAM can obstruct the TV causing jugular venous distension, peripheral oedema, hepatic congestion, ascites, and syncope.[3] Our patient looked malnourished, weighed only 1.7 kg along with low haemoglobin and platelet count. Arrhythmias commonly occur due to conduction defects caused by myxoma. Anaesthetic considerations in RAMs include hypoxaemia, low cardiac output, and potential pulmonary emboli due to their mobile nature. Aggravation of the patient's symptoms and hypotension can occur at certain positions due to intermittent obstruction of TV by a mobile RAM along with a change in the character of the murmur. Evaluation of these positions must be done preoperatively, and induction should be done with careful positioning, with the administration of titrated doses of anaesthetic drugs, which avoid myocardial depression while maintaining the preload and preparation to go on emergent CPB. Placing a CVC and SVC cannulation can be difficult in the presence of a tumour in the RA and may result in its fragmentation and dislodgement. Hence, utmost care should be taken to avoid entering the RA. Intraoperative transoesophageal echocardiography (TOE) monitoring helps in the detection and diagnosis of tumour fragmentation or dislodgement, and in assessing volume status as TR caused by RAM renders CVP measurement unreliable for evaluation of volume status.[4] However, in our case, TOE examination was not done because of non-availability of a neonatal probe. DHCA provides excellent surgical exposure for tumour removal, but the duration of circulatory arrest must be limited to prevent complications.[5] Perioperative care in premature neonates also includes preventing hypoglycaemia, hypoxia and hypothermia.[6] Anaesthetic concerns range from difficult airways, risk reduction for adverse events and adequate pain management.[7]

Thus, neonates with RAMs require early diagnosis, meticulous anaesthetic management and multidisciplinary approach to perioperative care.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and

other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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