

Intracardiac Suction Tip Inadvertently Left Behind Following Cardiac Surgery

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Abstract

The incidence of a foreign body left behind inside the heart following surgery is exceedingly rare, as one would suspect. This accident seems to occur more frequently in other body organs at the time of general and gynecologic surgery; however, the actual incidence is difficult to estimate. There have been few papers in the literature regarding the subject of foreign bodies left behind after cardiac surgical procedures. In this paper, a case of a suction tip left behind inside the heart following cardiac surgery is presented (*Iranian Heart Journal* 2004; 5(1,2):89-91).

Key words: foreign body retention ■ cardiac surgery

In spite of strict policy of even the most careful intraoperative precautions and attention to sponge and instrument counts, mistakes can occur during surgical procedures. The incidence of leaving instruments, sponges, etc. behind in the operating field has been reported to vary from 1/1000 to 1/10,000 procedures.¹ The symptoms of foreign bodies left in place during surgical operations may vary broadly from totally silent and symptomless to severe sepsis.²

Case report

An 18-year-old male was referred for surgery for the correction of atrial septal defect (ASD). Preoperative catheterization revealed a large left-to-right shunt due to an atrial septal defect, with a pulmonary to systemic blood flow ratio of 2:1. After the induction of general anesthesia, surgery was performed via median sternotomy. Routine cardiopulmonary bypass was established by aortic and bi-caval cannulation. Aortic cross-clamping having been performed, cold blood cardioplegia was infused, and after the induction of cardiac arrest, the large ASD (3×1.5 cm in diameter) was repaired with autologous pericardial patch. Unfortunately, upon the termination of the operation, the roller

pump head of the cardiopulmonary bypass machine developed a malfunction, which obliged us to terminate bypass as soon as possible. After the patient was weaned from cardiopulmonary bypass, the sternum was closed, and the incision was repaired via routine technique. At this time, the scrub nurse's attention was drawn to the fact that the suction tip was missing, and a search of the operating theater proved fruitless. Consequently, portable chest radiography was performed with the patient still on the operating table. In the antero-posterior chest radiograph there was a foreign body density similar to the metallic tip of the suction in the right hemi-thorax (Fig.1). Therefore, the sternum was reopened, but the suction tip was not found in the pericardial cavity. Thus with the bizarre but strong assumption of retained intracardiac foreign body, CPB was re-established with aortic and bi-caval cannulations. The aorta was cross-clamped, cardioplegia was infused, the right atrium was opened and the pericardial patch was reopened posteriorly. The suction tip was found lying inside the orifice of the right inferior pulmonary vein. After the extraction of the suction tip from inside the right inferior pulmonary vein, the atrial septal defect was again repaired,

and the operation was completed uneventfully.



Fig.1. Chest radiograph depicting metallic suction tip in the right hemi-thorax.



Fig.2. The two components of the sucker: tip and body.

Discussion

In our center, the waste suction instrument is not of the disposable type; rather it is metallic and has two components: body and tip. The tip is removable via unscrewing motion for washing and removal of debris. Apparently, the tip had inadvertently become undone during the surgical procedure and was left in place. Different kinds of retained foreign bodies may present with bizarre signs and

symptoms, and they may occur during even the most simple procedures.² These signs and symptoms include chills, fever, arrhythmias and pericardial mass. Different kinds of foreign body left in place include bulldog clamps, gauze sponges, pacemaker epicardial needles, suction heads and fragments of catheter.³

Rosenzweig et al.⁴ reported two reoperations during aortic dissection repair. Kaiser et al.⁵ devoted a paper to an analysis of a large series of retained surgical sponges with special attention to the financial implications.

The diagnosis of retained foreign body should be kept in mind during the investigation of intrapericardial masses in patients with a history of previous cardiac surgery.²

Preventive measures for leaving behind foreign bodies after cardiac surgery include:

- A: Maintaining a single surgical team throughout the procedure,
- B: Careful control of multi-component instruments like metallic suctions before sternal closure, and
- C: Experience of at least one member of the surgical team while setting the surgical instrument table.

However, no perfect method for preventing these events exists to this day. Retained foreign bodies represent a serious ethical and legal dilemma as well. In spite of the well-known precautions and profession of medical personnel, this accident must be regarded as a complication of surgical intervention. In conformity with the standpoint of current Iranian law, retained foreign bodies cannot be regarded as negligence but may be treated as malpractice. In almost all cases of retained foreign body after cardiac surgery, two predisposing factors are commonly found: 1) inadequate or imprecise attention during the surgery, and 2) unexpected intraoperative events. In our case, the roller

pump head unit broke down, and we were rushed to complete the operation. This case is an example of the old aphorism: haste makes waste. Our recommendation is to use a disposable-type single-piece suction instrument.

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