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Olgu Sunumu / *Case a Report*

Intraoperative New-Onset Atrial Fibrillation With a Surprising Reason in a Whipple Operation

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Whipple Cerrahisinin İntraoperatif Döneminde Şaşırtıcı Bir Nedene Bağlı Yeni Gelişen Atrial Fibrilasyon ve Yönetimi

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ABSTRACT

For an anesthesiologist, it is important to manage the hemodynamics of patients who develop atrial fibrillation (AF) during the perioperative period. In a patient undergoing Whipple surgery, atrial fibrillation, which is thought to occur with an astonishing intraoperative cause has not been reported in the literature. There are multiple risk factors for the development of new onset AF such as older age, diabetes, hypertension, hypovolemia, electrolyte imbalances, hypoxia, and underlying heart disease, etc. But also, during surgery, direct irritation of diaphragmatic surface of the heart with retractor may trigger AF.

Keywords: *atrial fibrillation, Whipple operation, general anesthesia, intraoperative arrhythmia*

ÖZ

Bir anesteziyolog için perioperatif dönemde atriyal fibrilasyon (AF) gelişen hastalarda hemodinamiyi yönetmek önemlidir. Whipple ameliyatı geçiren bir hastada, intraoperatif dönemde şaşırtıcı bir nedenle oluştuğu düşünülen atriyal fibrilasyon, literatürde bildirilmemiştir. Yaşlılık, diyabet, hipertansiyon, hipovolemi, elektrolit dengesizlikleri, hipoksi, altta yatan kalp hastalığı, vb. gibi yeni başlangıç AF gelişimi için birçok risk faktörü vardır. Fakat ayrıca, ameliyat sırasında, kalbin diyafragmatik yüzeyinin retraktörle doğrudan irritasyonu AF'yi tetikleyebilir.

Anahtar kelimeler: *atriyal fibrilasyon, Whipple operasyonu, genel anestezi, intraoperatif aritmi*

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INTRODUCTION

For an anesthesiologist, it is important to manage the hemodynamics of patients who develop atrial fibrillation (AF) during the perioperative period. In a patient undergoing Whipple surgery, atrial fibrillation, which is thought to occur with an astonishing intraoperative cause, has not been reported in the literature.

CASE REPORT

A 71-year-old female patient weighing 60 kg presented with pancreatic carcinoma was scheduled for Whipple operation. Medical records revealed the presence of hypertension, diabetes mellitus and previous hip surgery. Patient stated that she did not have any problems in her previous operation. The patient was using ramipril (Delix) and metformin (Glifor), but she did not take her medicines on the day of surgery. Preoperative laboratory and electrolyte measurements were normal, only slight bilirubin and blood sugar elevation were present. The electrocardiogram (ECG) demonstrated normal sinus rhythm, no other pathologic findings were found, and it was evaluated as an intermediate risk in cardiology consultation. After obtaining consents, the patient was brought into the operating room. Initial blood pressure 144/92 mmHg, and heart rate 86 bpm were measured. Baseline monitoring was established, radial artery was cannulated, general anesthesia was administered and maintained with propofol/fentanyl/rocuronium/sevoflurane/air/oxygen. Post-induction blood pressure 116/74 mmHg, heart rate 68 bpm was measured. Hemodynamic data were stable during intraoperative period. However, at intraoperative 30th min, the ECG monitor showed a varying R-R interval with high heart rate of 140 bpm, with a fall in blood pressure to 70/40 mmHg. After AF diagnosis was made, 300 ml saline was infused to optimise preload. Blood pressure increased to 90/55 mmHg, and surgery was continued. About 10 min later, blood pressure again dropped to 65/40 mmHg and heart rate increased to 144 bpm. Patients with new-onset AF could generally convert AF back to sinus rhythm spontaneously, so firstly rate control strategy with metoprolol and digoxin was preferred [1]. However, medications did not work. In symptomatic and life-threatening AF, electrical cardioversion was decided, for conversion to sinus rhythm and stable hemodynamics. The surgical drape on the patient was removed to apply cardioversion, and the deeply placed abdominal surgical retractor was removed. After removal of deeply placed left side abdominal retractor, the patient's hemodynamics suddenly normalized (106/68 mmHg, 88/min). The cardioversion attempt was paused and normal blood pressure and heart rate monitored about for 10 min. Although hemodynamic data improved, atrial fibrillation still persisted so cardioversion was considered again. At exactly this time, the patient's heart rate spontaneously returned to the normal sinus rhythm, with a stable hemodynamic status. The operation lasted 5.5 hours and she was extubated, and afterwards transferred to the ICU without problem.

CONCLUSION

Atrial fibrillation is associated with increasing age and results in significant morbidity. There are multiple risk factors for the development of new onset AF such as older age, diabetes mellitus, hypertension, hypovolemia, electrolyte imbalances, hypoxia, underlying heart disease,etc. High blood pressure causes the atria to enlarge, making AF more likely. Diabetes damages the conductor cells of the heart. Atrial fibrillation occurs as a result of adrenergic stimulation, systemic inflammation, or autonomic fluctuation during intraoperative and postoperative periods [1]. Cardiac parasympathetic stimulations mediated with vagus nerve, and increased parasympathetic tone may cause vagal AF. Parasympathetic impulses via vagus nerve are transmitted to all of the organs except the descending colon, sigmoid colon, rectum and anus. The type of surgery is also important for developing AF. The incidence of AF in non-cardiac surgery is lower than in cardiac surgery (0.3 vs 29%), ranges from 12-19% for abdominal surgery [2]. Atrial fibrillation appears to be increasing in patients with an intraoperative hypotension period of more than 10 minutes [3]. Atrial fibrillation can sometimes be triggered by such etiologic factor or sometimes completely idiopathic causes. Also, during surgery, direct irritation of diaphragmatic surface of the heart with retractor may trigger AF [4]. Central

venous catheter, and guidewire placement, manipulation of the trachea during endotracheal intubation, and peritoneal traction are the mechanical causes that can result in AF [5]. This patient has advanced age, hypertension, activated systemic inflammatory process due to cancer and diabetes as preoperative risk factors. In addition to preoperative risk factors, the patient also has risk factors for intraoperative period such as abdominal surgery, vagal stimulation due to retraction of visceral organs, impaired blood supply of cardiac conductor cells due to tachycardia and decreased stroke volume. The deeply seated abdominal retractor which may obstruct the venous return by collapsing caval and portal system is another risk factor. Mechanical irritation of the atrium should be recognized and eliminated when AF was encountered intraoperatively. It should be kept in mind that intraoperative mechanical factors like deeply seated retractor may trigger AF in the presence of underlying risk factors.

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