TAKOTSUBO CARDIOMYOPATHY ASSOCIATED WITH ANESTHESIA – CASE REPORT

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BACKGROUND

- Takotsubo Cardiomyopathy (TC) was first reported in 1990 and Doron and Gavish were the first publishing an anesthesia associated Takotsubo case^{1,4}
- TC is rare, mimics an acute coronary syndrome and results in acute Left Ventricular (LV) dysfunction in the absence of obstructive coronary disease^{1,2,3}. Although prognosis is favorable, serious complications, as cardiac arrest, can occur.
- We report a TC case probably associated with physical and emotional stress in an anesthetic-surgical context, in a patient who underwent an elective inguinal hernia repair.

CASE REPORT

IDENTIFICATION

Male, 66 years old, ASA II

- ✓ No history of surgical interventions/anesthesia
- ✓ Unknown allergies
- ✓ No significant preoperative findings, besides a preoperative high anxiety level

PERIOPERATIVE

MONITORIZATION

- ASA standard and *Bispectral Index*[®]

ANESTHESIA TECHNIQUE

- ✓ General anesthesia with LMA
- Midazolam EV for reduced anxiety
- Induction with propofol and fentanyl
- Maintenance with desflurane
- Analgesia: Cetorolac, Paracetamol EV and surgical wound infiltration with Ropivacaine 7,5%

Laboratory Results

Elevation of myocardial necrosis biomarkers

12-lead ECG

ST depression from V3 to V5; ST elevation in V1, V6 and aVL

Echocardiogram

LV global hypokinesia with severe depression of systolic function

Coronary angiography and Chest-abdomen-pelvis CT

Normal

Table 1. Complementary Exams after Return of Spontaneous Circulation (ROSC)

Figure 1a. Left Ventriculography: systole showing apical ballooning akinesis with basal hyperkinesis - Typical motility changes of TC; 1b Left Ventriculography: diastole

DISCUSSION

All 4 Mayo Clinic Diagnostic Inclusion Criteria of TC required for the diagnosis were positive in this patient: 1. Transient LV **hypokinesia**, akinesis, or dyskinesia with or without apical involvement. The regional wall motion abnormalities typically extend beyond a single epicardial coronary distribution. It's frequently a **stressful trigger**; 2. **Absence of obstructive coronary artery disease** or angiographic evidence of acute plaque rupture; 3. **New ECG changes**: ST-segment elevation and/or T-wave inversion or modest elevation in cardiac troponin levels; 4. **Absence of pheochromocytoma and myocarditis**. Also it is known that there are critical instances in anesthesia and surgery when catecholamine discharge may affect the heart.

ANESTHESIA INDUCTION and MAINTAINANCE (45MIN)	ANESTHESIA EMERGENCE Hemodynamic Instability Cardiac Arrest One cycle ALS: ROSC	CORONARY ICU UNIT Admission: Endotracheal intubation Ventilatory support Norepinephrine infusion	After 36h Hemodynamically stable and ICU Unit Discharge	POSTOPERATIVE DAY4 Hospital discharge with no cardiovascular symptoms	8 Weeks Follow-up echocardiogram: recovered motility of the ventricular wall and LVEF 63%, no segmental abnormalities
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Figure 2. Chronological Timeline Evolution

CONCLUSION

TC is an increasingly reported phenomenon that may occur not only in settings of acute physical or emotional stress, but also iatrogenic stress related to common medical procedures. With this case report we pretend to divulge an event of this rare cardiomyopathy in an anaesthetic-surgical context, in order to consider a diagnosis of TC in a patient demonstrating myocardial dysfunction, as an early and accurate diagnosis leads to appropriate interventions and better patient outcomes.

*1. Bradbury B, Cohen F. Early Postoperative Takotsubo Cardiomyopathy: A Case Report. AANA Journal. 2011;79(3): 381-388

*2. Lentschener C, et al. Early Postoperative Tako-Tsubo-Like Left Ventricular Dysfunction: Transient Left Ventricular Apical Ballooning Syndrome. ANESTHESIA & ANALGESIA

*3. Akashi Y et al. Takotsubo Cardiomyopathy: A New Form of Acute, Reversible Heart Failure. AHA Journals

*4. Varutti R et al. Postoperative Takotsubo cardiomyopathy triggered by intraoperative fluid overload and acute hypertensive crisis. Romanian Journal of Anaesthesia and Intensive Care