

## Perkutani epikardni pristup za ablaciju ventrikularne tahikardije u bolesnika sa strukturnom bolesti srca – pregled serije bolesnika iz Kliničkog bolničkog centra Split

### Percutaneous epicardial approach for ventricular tachycardia ablation in patients with structural heart disease – case series presentation from University Hospital Centre Split

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**Uvod:** Perkutana kateterska ablacija je etablirani način liječenja simptomatskih ventrikularnih tahikardija (VT). Endokardni pristup ablaciji često nije dovoljan za postizanje potpune kontrole nad aritmijama jer se aritmogeni substrat nalazi bliže epikardnim slojevima miokarda. Ovo je osobito često u bolesnika s neishemijskom kardiomiopatijom (NICM). Upravo za ovu podskupinu bolesnika treba biti korišten perkutani, subksifoidni pristup za VT ablaciju<sup>1</sup>.

**Bolesnici i metode:** Ovo je prikaz serije od 5 bolesnika s pregledom indikacija i nekih intraproceduralnih aspekata epikardne VT ablacije kojima je intervencija napravljena u razdoblju od prosinca 2017. do studenoga 2018. u Kliničkom bolničkom centru Split.

**Rezultati:** Svih pet bolesnika je imalo dijagnozu NICM (u tri dilatativna kardiomiopatija, kod dva stanje nakon miokarditisa). Srednja dob je bila 57 godina (raspon 27-71), svi muškog spola. Procedura je napravljena u općoj, endotrahealnoj anesteziji. Punkcija perikardnog prostora je napravljena pod kontrolom RTG-a koristeći standardni institucionalni protokol. U troje, epikardni pristup ablaciji je korišten zbog anamneze prijašnjeg neuspješnog pokušaja ablacije samo endokardnim putem, a u dvoje zbog podataka iz slikovnih metoda (MRI ili ehokardiografija) koji su ukazivali na postojanje epikardnog substrata aritmiji. Sve su ablacije napravljene pomoću sustava za 3D kardijalno mapiranje, koristeći posebno dizajniranu upravljivu uvodnicu za manevriranje u perikardnom prostoru i kateter s mogućnošću praćenja jačine kontakta s tkivom. Prosječno trajanje procedure je bilo 279 ± 33 minuta. RF ablacija nije bila primjenjena epikardno u jednog bolesnika jer je elektroanatomska mapa epikardnog LV miokarda pokazala odsutnost aritmogenog substrata. U ostalih je kombiniranom epi i endo ablacijom postignuta neinducibilnost VT uz korištenje agresivnih stimulacijskih protokola sa do četiri ekstrastimulusa. U svih pet procedura nije se dogodila niti jedna ozbiljna komplikacija te su svi bolesnici otpušteni iz bolnice dva dana nakon ablacije.

**Zaključak:** Epikardna VT ablacija je vrlo invazivna procedura, no kada se radi u centrima s kardiokirurškom podrškom i velikim volumenom ablacijskih procedura, nudi mogućnost sigurnog izvođenja i daje šansu ostvariti kontrolu nad aritmijama koje ugrožavaju ne samo kvalitetu, već i život ovih pacijenata.

**Introduction:** Percutaneous catheter ablation for ventricular tachycardias (VT) is an established way of treating symptomatic. Endocardial approach to ablation is often not sufficient to gain full control of arrhythmia since substrate is contained closer to epicardial myocardium layer. This is especially true for the patients with the non-ischemic cardiomyopathy (NICM). It is for this subset of patients that percutaneous, subxiphoid, epicardial approach for ventricular tachycardia ablation should be utilized<sup>1</sup>.

**Patients and Methods:** This is a case series presentation with an overview of indications and some intraprocedural aspects of epicardial VT ablation procedures performed from December 2017 to November 2018 in 5 patients in whom we used this approach at University Hospital Centre Split.

**Results:** All the patients had diagnosis of NICM (3 dilated cardiomyopathy, 2 post myocarditis). Mean patient age was 57 years (range 27-71), all males. Procedures were done in general anesthesia. The puncture of pericardial space was obtained under an X ray guidance using standardized views and protocol. In 3, epicardial approach was utilized because of the history of previous failed endocardial ablation, while in the rest imaging data pointed toward epicardial substrate (MRI or echocardiography data). All the ablations were done with help of the 3D mapping system, using dedicated, steerable sheath for epicardial approach and contact force sensing catheters. Mean procedure time was 279±33 minutes. No radiofrequency application was applied epicardially in one patient since the electroanatomical data show no clear arrhythmia substrate. In the rest, combined endo and epi approaches were utilized to gain VT noninducibility at the end of procedures with aggressive stimulation protocol with up to 4 extrastimuli. No complications occurred during any of these epicardial VT cases and all the patients were discharged 2 days after the procedure.

**Conclusion:** Epicardial VT ablation is highly invasive procedure with substantial list of serious complications, but when done in institutions with cardiac surgery back-up and high-volume cardiac electrophysiology team holds a promise to gain a control over VT recurrency and prolong patients' life.

#### LITERATURE

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