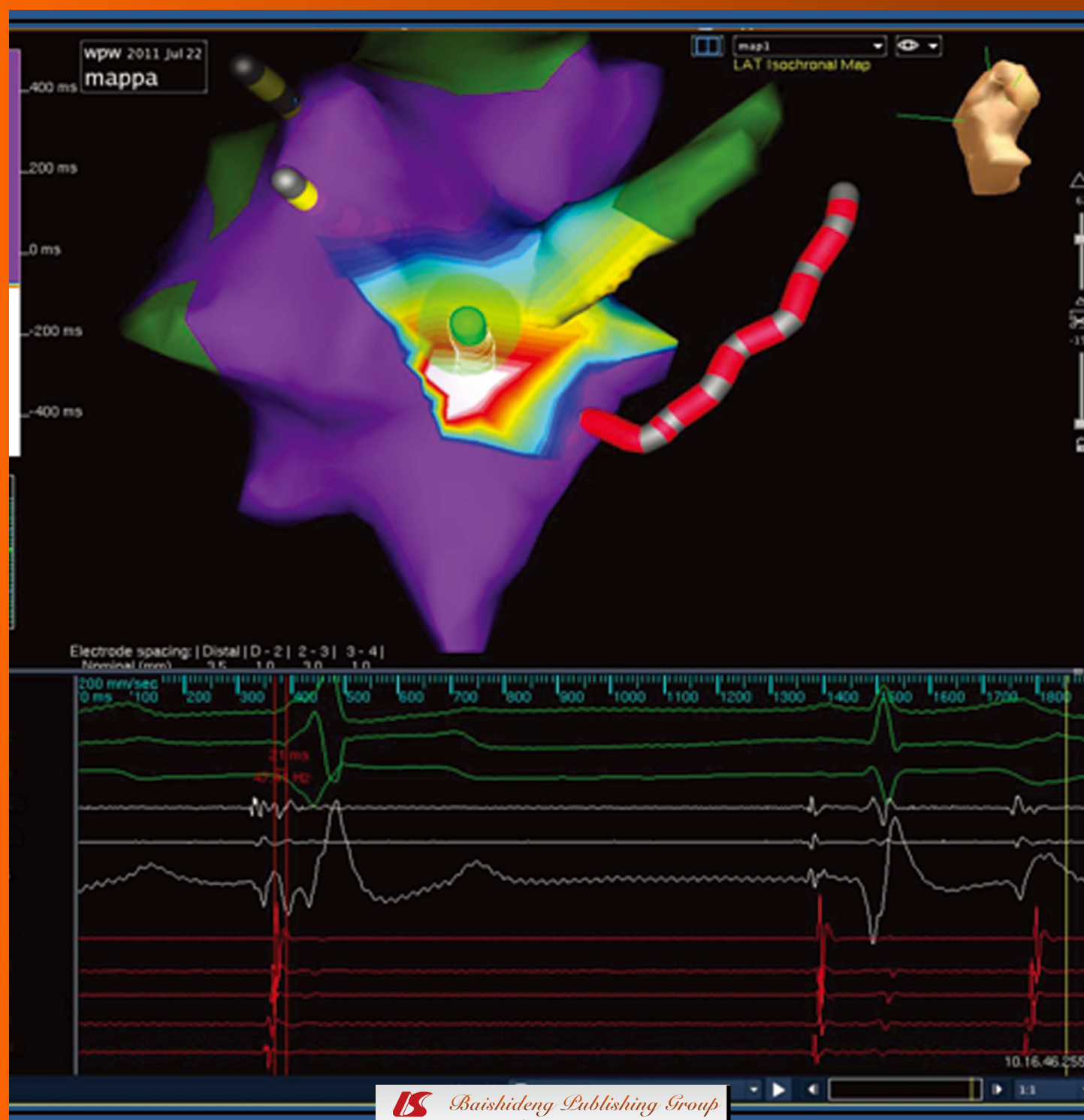


World Journal of *Cardiology*

World J Cardiol 2013 February 26; 5(2): 8-14





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<http://www.wjgnet.com/1949-8462/full/v5/i2/8.htm>

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NAME OF JOURNAL
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ISSN
ISSN 1949-8462 (online)

LAUNCH DATE
December 23, 2011

FREQUENCY
Monthly

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PUBLICATION DATE
February 26, 2013

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Manifold benefits of choosing a minimally fluoroscopic catheter ablation approach

Michela Casella, Antonio Dello Russo, Gaetano Fassini, Daniele Andreini, Pasquale De Iuliis, Saima Mushtaq, Stefano Bartoletti, Stefania Riva, Claudio Tondo

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Received: September 5, 2012 Revised: December 11, 2012

Accepted: December 21, 2012

Published online: February 26, 2013

sis allowed to pinpoint the site of earliest activation and the site of mechanical bumping, where radiofrequency obtained the accessory pathway ablation. The second procedure was performed without using fluoroscopy at all. Thanks to the geometry reconstruction, the procedure was completely successful thus avoiding a further rehospitalization.

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Key words: Supraventricular arrhythmias; Accessory pathway; Radiofrequency ablation; Electroanatomical mapping; Radiation exposure

Casella M, Dello Russo A, Fassini G, Andreini D, De Iuliis P, Mushtaq S, Bartoletti S, Riva S, Tondo C. Manifold benefits of choosing a minimally fluoroscopic catheter ablation approach. *World J Cardiol* 2013; 5(2): 8-11 Available from: URL: <http://www.wjgnet.com/1949-8462/full/v5/i2/8.htm> DOI: <http://dx.doi.org/10.4330/wjc.v5.i2.8>

Abstract

We report the case of a 14-year-old boy with ventricular preexcitation. A standard, fluoroscopy guided, ablation procedure was successfully performed in a postero-midseptal region with a total fluoroscopy time of about 45 min (2430 cGy.cm²). A few hours after the procedure, preexcitation reappeared. A second ablation procedure was scheduled using the EnSite NavX™ mapping system. During mapping along the tricuspid groove, preexcitation suddenly disappeared due to mechanical "bumping" of the accessory pathway and it did not recover over the next 30 min. As per our routine practice, the phase of geometry reconstruction has been continuously recorded by the system; thus, an off-line analy-

INTRODUCTION

In the last few years a growing number of papers and case-reports have been published showing the feasibility and safety of a minimally fluoroscopic approach in supraventricular tachycardias ablation^[1].

CASE REPORT

We report the case of a 14-year-old boy with asymptomatic ventricular preexcitation noticed during a standard visit for competitive sports qualification (soccer). The patient underwent a transesophageal electrophysiological study, which revealed that the accessory pathway had a short refractory period (220 ms) and that preexcited atrial fibrillation could be easily induced by atrial stimulation.

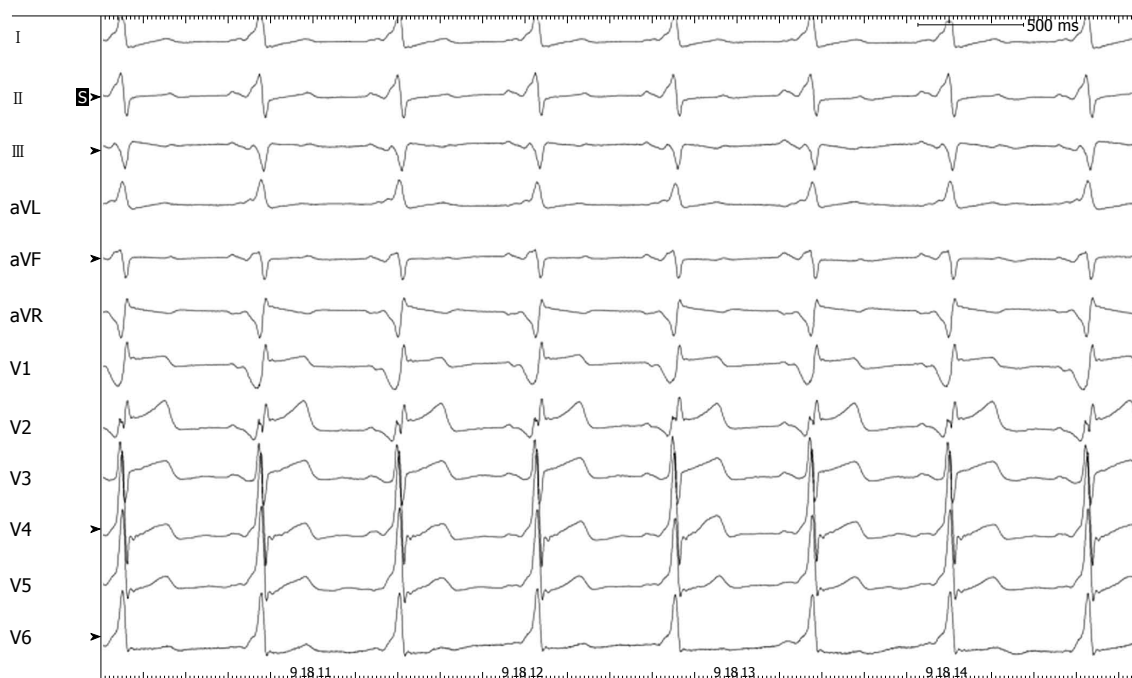


Figure 1 Basal 12-lead electrocardiograms showing constant ventricular preexcitation.

The patient was denied eligibility for competitive sports and was then referred to our institution to perform catheter ablation of the accessory pathway. With the parents' consent, the procedure was performed under general anesthesia with endotracheal intubation. Mapping along the tricuspid groove was performed with an irrigated-tip ablation catheter (Thermocool Biosense) showing fused atrioventricular potential near the roof of the coronary sinus ostium. Radiofrequency (RF) pulses delivered at that site were ineffective. Access to the left atrium was then obtained through both retrograde aortic and transseptal approach in order to map the mitral groove and three further RF pulses were delivered in the left postero-septal region, again without suppressing the preexcitation. Mapping along the tricuspid groove was performed again and a fused atrioventricular potential was observed preceding the surface delta wave by 30 ms in a location slightly higher than before, in a postero-midseptal region. A single RF pulse at this site obtained immediate disappearance of the preexcitation and elicited a junctional rhythm with 1:1 retrograde conduction; three consolidation pulses (15 W) were delivered at the same site (Figures 1 and 2). The procedure was concluded after a 30-min monitoring period followed by ventricular stimulation (which documented retrograde conduction only through the atrioventricular node) and adenosine injection (which documented transient complete atrioventricular block). The total fluoroscopy time amounted to 44 min and 53 s (2430, 41 cGy.cm²), corresponding to 4 mSV, the same radiation dose of 40-50 chest X-rays^[2]. Thus, this procedure carried, to our patient, a lifetime attributable risk of malignancy of about 5/10 000, as calculated using Table 12D-1 of the BEIR VII report^[3].

A few hours after the procedure, preexcitation reappeared on electrocardiograms (ECG) with the same morphology. In view of the patient's strong motivation and after discussing the case with his parents, a second ablation procedure was scheduled for the next day, but in view of the large radiation exposure from the previous procedure, it was decided to use the EnSite NavXTM electroanatomical mapping system as a navigation tool^[1]. Ablation was again performed under general anesthesia. The phase of geometry reconstruction was continuously recorded by the system, as per our routine practice. During mapping along the tricuspid groove, preexcitation suddenly disappeared due to mechanical "bumping" of the accessory pathway and it did not recover over the next 30 min. Thus, an off-line analysis of the electroanatomical mapping phase^[4] was performed and the activation map obtained allowed to pinpoint the site of earliest activation and the site of mechanical bumping, where seven RF pulses (up to 30 W) were delivered (Figures 3 and 4). The procedure was concluded after a 40-min monitoring period followed by atrial and ventricular stimulation, isoprenaline infusion and adenosine injection, with no evidence of either preexcitation or atrioventricular reentrant tachycardia. The second procedure was performed without using fluoroscopy at all. The patient was discharged after 2 d, with a normal ECG. On a follow-up visit 3 mo later, he remained free of preexcitation.

DISCUSSION

This issue is of particular interest in pediatric and young patients, as in our case, because they are more vulnerable to the effects of radiation and have a longer life

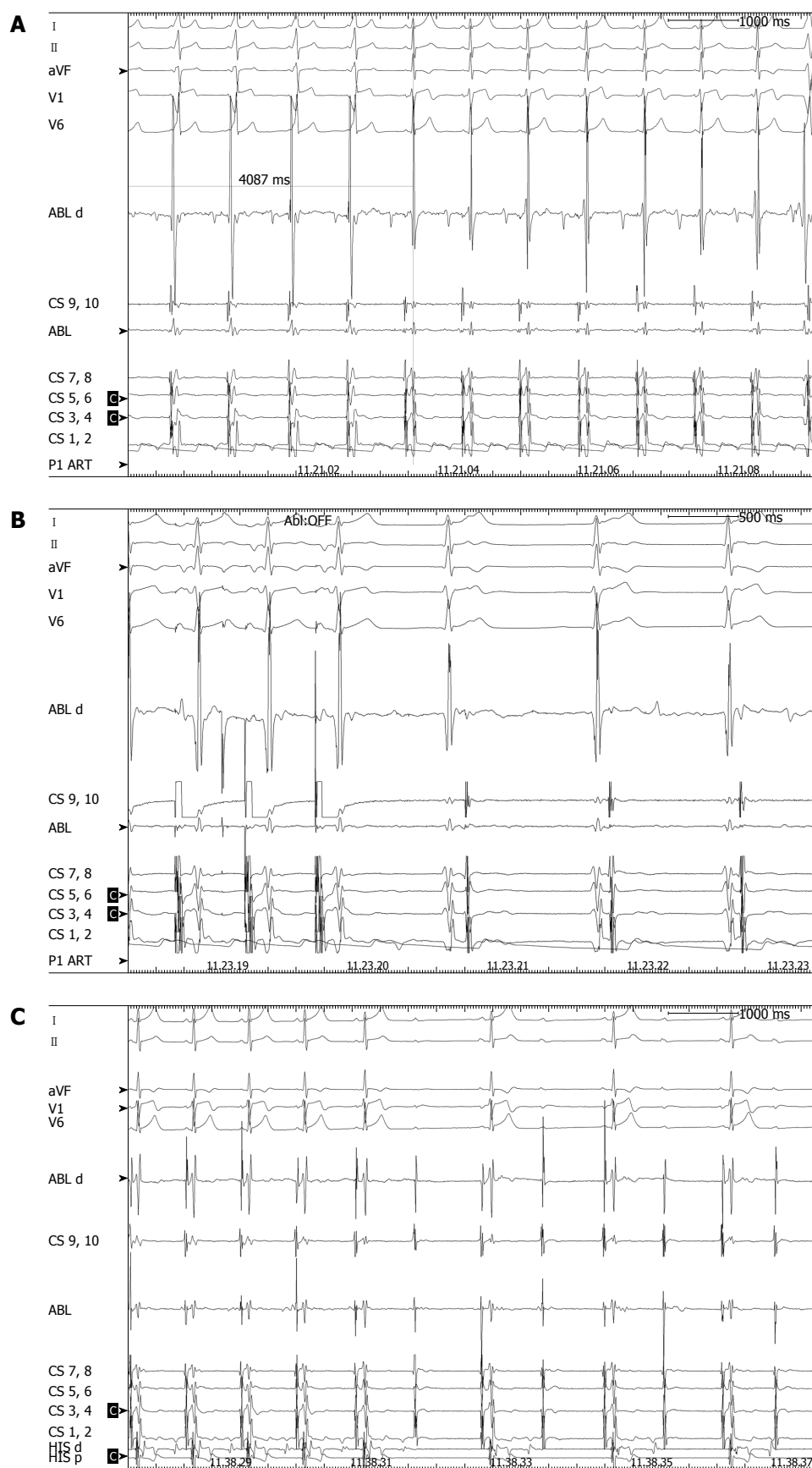


Figure 2 Three consolidation pulses were delivered at the same site. A: The effective radiofrequency (RF) pulse. Ventricular preexcitation disappeared 4 s after the pulse was started and, few beats later, a junctional rhythm with 1:1 retrograde conduction overtook sinus rhythm. Thus the RF pulse was prematurely stopped. As the phenomenon could be reliably reproduced, subsequent consolidation pulses were delivered during atrial pacing with the irrigated-tip ablation catheter up to a maximum of 15 W; B: A RF pulse delivered during atrial pacing with emergence of junctional rhythm as pacing was stopped; C: Transient complete atrioventricular block during adenosine injection at the end of the first ablation procedure.

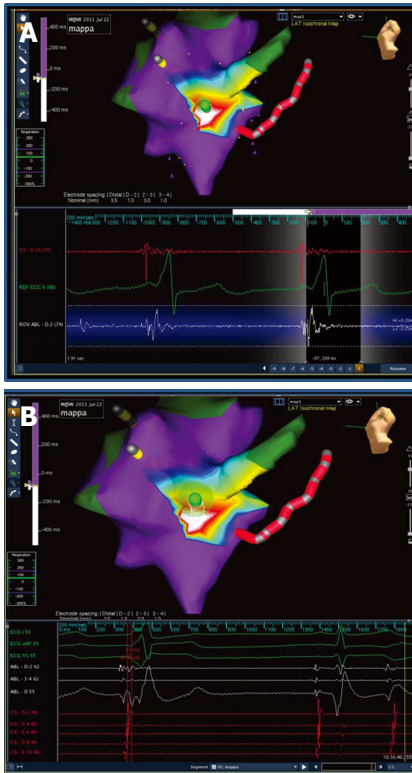


Figure 3 Two different frames obtained from the off-line analysis of geometry reconstruction recording. A: The ablation catheter (visualized in green) is at the site of earliest ventricular activation; B: The ablation catheter is in a site slightly superior to that where mechanical "bumping" occurred.

expectancy than adults. In our case, the first procedure was performed with conventional fluoroscopic guidance, according to the operator's discretion, as to date no guidelines or recommendations are available on this specific regard. The fluoroscopic procedure provided our patient with a non-negligible lifetime attributable risk of malignancy^[3], while the second procedure was associated to no ionizing radiation exposure and, as a consequence, it carried no radiological risk.

As an additional peculiarity, in our case the mapping system was useful not only for non-fluoroscopic navigation but also for arrhythmia mapping. As usual in accessory pathway or complex arrhythmia ablations, we record on the system the complete phase of geometry reconstruction, a routine habit that has proved to be particularly helpful. After a lasting mechanical "bumping", in a conventional fluoroscopy-guided procedure, the study should be stopped without ablation. In our case instead, an off-line analysis of the geometry reconstruction phase allowed to obtain an activation map where the sites of bumping, earliest activation and atrioventricular node were pinpointed. The ablation guided by the off-line activation map proved

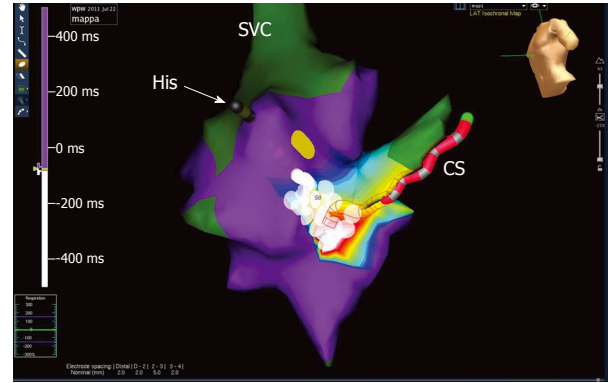


Figure 4 Site of effective ablation. Ablation pulses (white circles) were delivered in the posterior and postero-midseptal region covering all the area where the earliest activation had been recorded and the mechanical bumping occurred. The yellow circle points out the area where the mapping catheter produced mechanical junctional beats; this area is marked as the likely site of compact atrioventricular node. Thus ablation was safely delivered up to 30 W with an irrigated tip catheter. SVC: Superior vena cava; CS: Coronary sinus.

effective during the subsequent follow-up. Thus the mapping system allowed successful ablation, despite the absence of any preexcitation to be mapped, and ensured safety from procedural complications (*i.e.*, atrioventricular node lesion) with no increase in life-term radiological risk.

ACKNOWLEDGMENTS

We thank Dr. Viviana Biagioli for editorial assistance.

REFERENCES

- 1 Casella M, Pelargonio G, Dello Russo A, Riva S, Bartoletti S, Santangeli P, Scarà A, Sanna T, Proietti R, Di Biase L, Gallinhouse GJ, Narducci ML, Sisto L, Bellocci F, Natale A, Tondo C. "Near-zero" fluoroscopic exposure in supraventricular arrhythmia ablation using the EnSite NavX™ mapping system: personal experience and review of the literature. *J Interv Card Electrophysiol* 2011; **31**: 109-118 [PMID: 21365263 DOI: 10.1007/s10840-011-9553-5]
- 2 Bushong SC, Morin RL. Radiation safety. *J Am Coll Radiol* 2004; **1**: 144-145 [PMID: 17411545 DOI: 10.1016/j.jacr.2003.11.010]
- 3 Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation. Nuclear and Radiation Studies Board, Division on Earth and Life Studies, National Research Council of the National Academies. Health Risks From Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2. Washington, DC: The National Academies Press, 2006
- 4 Casella M, Perna F, Dello Russo A, Pelargonio G, Bartoletti S, Ricco A, Sanna T, Pieroni M, Forleo G, Pappalardo A, Di Biase L, Natale L, Bellocci F, Zecchi P, Natale A, Tondo C. Right ventricular substrate mapping using the Ensite Navx system: Accuracy of high-density voltage map obtained by automatic point acquisition during geometry reconstruction. *Heart Rhythm* 2009; **6**: 1598-1605 [PMID: 19786371 DOI: 10.1016/j.hrthm.2009.07.040]

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Congenital partial absence of the pericardium in a young man with atypical chest pain

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Received: October 17, 2012 Revised: February 7, 2013
Accepted: February 8, 2013
Published online: February 26, 2013

Abstract

Pericardial defects are infrequent congenital anomalies due to agenesis caused by premature atrophy of the common cardinal vein or Cuvier duct during the 5th or 6th week of embryonic life. These congenital defects are rare, typically observed as an incidental finding and usually remain asymptomatic. Nevertheless, the more widespread use of modern imaging techniques has contributed to an increase of its incidence in recent years. There is currently no consensus regarding therapeutic options, all of which are based on small retrospective studies that evaluate the risk of developing a life-threatening complication such as herniation and incarceration of the myocardium. We report on a 22-year-old male who presented with sudden onset of sharp chest pain and dyspnea. Computed tomography and cardiac magnetic resonance scan revealed a pericardial defect adjacent to the lateral free wall of the left atrium with associated herniation of the left atrial appendage. The patient was managed conservatively and had an uneventful clinical progress.

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Key words: Pericardial defect; Chest pain; Atrial herniation

Juarez-Belaunde A, Akerström F, Alguacil AM, González BS. Congenital partial absence of the pericardium in a young man with atypical chest pain. *World J Cardiol* 2013; 5(2): 12-14
Available from: URL: <http://www.wjgnet.com/1949-8462/full/v5/i2/12.htm> DOI: <http://dx.doi.org/10.4330/wjc.v5.i2.12>

INTRODUCTION

We herein present the case of a young male with atypical chest pain and congenital partial absence of the pericardium. A brief discussion on this rare congenital defect with its clinical presentation, diagnostic workup and management is provided at the end of the case report.

CASE REPORT

A 22-year-old male with no medical background presented to the emergency department with sudden onset of sharp chest pain and dyspnea. There were no other associated symptoms and the physical examination and vital signs were all normal. Blood analysis, including hematology, biochemistry and viral serology, were unremarkable. The chest radiograph showed an apparent horizontalization of the left bronchus and images, suggestive of hilar adenopathies (Figure 1). The electrocardiogram (ECG) demonstrated sinus rhythm at 66 beats per minute with right bundle branch block. The patient was prescribed regular analgesics, with the chest pain subsiding shortly after, and was discharged and referred to the internal medicine outpatient clinic for a diagnosis work-up. In order to further evaluate the findings observed on the chest radiograph and to establish a definite diagnosis and the correspondent therapeutic management, a computed tomography (CT) scan was carried out which revealed a

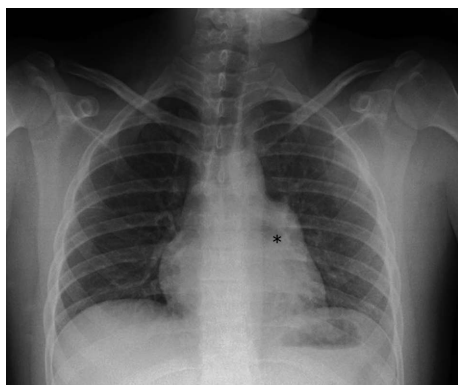


Figure 1 Chest radiograph. Chest radiograph showing horizontalization of the left bronchus (asterisk) initially interpreted as hilar adenopathies and later found to be secondary to herniation of the left atrial appendage through the pericardial defect.

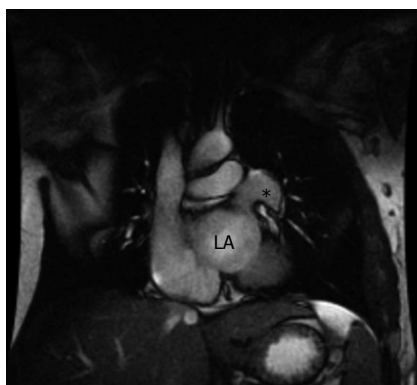


Figure 2 Cardiac magnetic resonance imaging. Cardiac magnetic resonance imaging (coronal view) displaying the partial pericardial defect (20 mm × 30 mm) localized to the left atrial (LA) wall. Herniation of the left atrial appendage can be seen (asterisk).

pericardial defect adjacent to the lateral free wall of the left atrium (20 mm × 30 mm) with associated herniation of the left atrial appendage. The same findings were confirmed by a cardiac magnetic resonance (CMR) scan (Figure 2). A transthoracic echocardiogram was also performed, with non-specific findings: mild dilatation of right atrium and ventricle, and mild tricuspid regurgitation, with the rest of the examination being normal. Given the uneventful clinical progress, a conservative approach was adopted and the patient was subsequently discharged. To date, 5 years later, he is in good health and remains asymptomatic.

DISCUSSION

The described pericardial defect is due to agenesis caused by premature atrophy of the common cardinal vein or Cuvier duct during the 5th and 6th week of embryonic life. This leads to reduced blood supply to the pericardial and pleural membranes, preventing their closure. When this defect is small, the result is usually a pleuropericardiac fistula. However, in the case of a larger defect the left lung

and the heart may coexist within the same pleural cavity. In most cases, the abnormality has been reported to involve the left lung. Congenital pericardial defects are rare: there are 400 cases reported in the literature so far. It is three times more common in males and, in 30% to 50% of the cases, associated congenital abnormalities (heart, lung, diaphragm and chest wall) have been reported^[1,2].

In most instances, the pericardial defect is usually identified incidentally in an asymptomatic patient. Nevertheless, reported symptoms include stabbing chest pain and dyspnea, as in our patient. Complications depend on the extent of the pericardial defect. In general, complete absence of the entire pericardium or of the whole of the left or right side carries an excellent prognosis. A partial pericardial absence, on the other hand, has been reported to carry a higher risk due to potential herniation and strangulation of the atria, appendages or of parts of the ventricles. Furthermore, the herniating structures may compress the great vessels and coronary arteries, which may affect ventricular systolic function and lead to myocardial ischemia, respectively. The physical examination is usually non-specific but may reveal a significantly displaced apical impulse, basal ejection murmurs, apical midsystolic clicks and increased splitting of the second heart sound due to right bundle branch block^[1-4].

The ECG in patients with pericardial defects may show typical findings, such as right axis deviation, incomplete or complete RBBB and poor R wave progression due to clockwise rotation in the horizontal plane. The chest X-ray may show characteristic features such as levoposition of the heart, resulting in the absence of the right heart border projecting on the right side of the vertebral column, flattening and elongation of the left ventricular contour (Snoopy sign)^[1-4]. The echocardiography exam may be helpful for the initial evaluation of complete absence of the pericardium with features related to the abnormal cardiac position and movement: unusual echocardiography windows, cardiac hypermobility, “teardrop” appearance, paradoxical or flat systolic motion of the interventricular septum, severe tricuspid regurgitation and right ventricle dilatation. However, and as in our patient, the echocardiography exam of partial absence of the pericardium usually provides limited information^[5].

Even although the previously discussed diagnostic tools are important in the diagnostic workup, the definite diagnosis of a pericardial defect is made by CMR and CT. Both techniques confirm the diagnosis, visualize the extent of the defect and assess associated complications that are essential for the management of the defect. The CMR is considered the gold standard since it better visualizes the pericardium compared to CT and is also capable of detecting focal myocardial infarctions^[5].

There is currently no unanimity with regards to the therapeutic options, all being based on small retrospective series aimed at the evaluation of the risk of suffering life-threatening complications (herniation). A total pericardial left defect carries a small risk and in these patients no surgical treatment is usually necessary. The controversy

is related to small and moderate sized left pericardial defects where some advocate prophylactic surgery and others only treating symptomatic patients. The surgical techniques include left atrial appendectomy, division of adhesions, pericardiotomy, enlarging the defect to reduce the risk of incarceration and pericardioplasty which aims to restore the defect either by primary closure or complete reconstruction with synthetic materials. Some reports argue that diagnosis of moderate-sized pericardial defects in symptomatic or nonsymptomatic patients should be followed by prophylactic operation to reduce the risk of death from cardiac structure herniation and incarceration. Postpericardiotomy syndrome is a common reported complication following these surgical procedures^[1-4].

In summary, we report a case of a left side partial pericardial defect, a rare cardiac anomaly. Given the uneventful clinical progress that our patient presented with, he was subsequently treated conservatively.

REFERENCES

- 1 **Brulotte S**, Roy L, Larose E. Congenital absence of the pericardium presenting as acute myocardial necrosis. *Can J Cardiol* 2007; **23**: 909-912 [PMID: 17876387 DOI: 10.1016/S0828-282X(07)70851-6]
- 2 **Chassaing S**, Bensouda C, Bar O, Barbey C, Blanchard D. A case of partial congenital absence of pericardium revealed by MRI. *Circ Cardiovasc Imaging* 2010; **3**: 632-634 [PMID: 20841555 DOI: 10.1161/CIRCIMAGING.109.892794]
- 3 **Abbas AE**, Appleton CP, Liu PT, Sweeney JP. Congenital absence of the pericardium: case presentation and review of literature. *Int J Cardiol* 2005; **98**: 21-25 [PMID: 15676161 DOI: 10.1016/j.ijcard.2003.10.021]
- 4 **Gatzoulis MA**, Munk MD, Merchant N, Van Arsdel GS, McCrindle BW, Webb GD. Isolated congenital absence of the pericardium: clinical presentation, diagnosis, and management. *Ann Thorac Surg* 2000; **69**: 1209-1215 [PMID: 10800821 DOI: 10.1016/S0003-4975(99)01552-0]
- 5 **Psychidis-Papakyritsis P**, de Roos A, Kroft LJ. Functional MRI of congenital absence of the pericardium. *AJR Am J Roentgenol* 2007; **189**: W312-W314 [PMID: 18029841 DOI: 10.2214/AJR.05.1655]

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Name of journal

World Journal of Cardiology

ISSN

ISSN 1949-8462 (online)

Launch date

December 31, 2009

Frequency

Monthly

Editor-in-Chief

Raúl Moreno, MD, Director of Interventional Cardiology, Interventional Cardiology, Hospital La Paz, Paseo La Castellana, 261,

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Acknowledgments

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- 2 **Lin GZ**, Wang XZ, Wang P, Lin J, Yang FD. Immunologic

effect of Jianpi Yishen decoction in treatment of Pixu-diar-rhoea. *Shijie Huaren Xiaobua Zazhi* 1999; **7**: 285-287

In press

- 3 **Tian D**, Araki H, Stahl E, Bergelson J, Kreitman M. Signature of balancing selection in Arabidopsis. *Proc Natl Acad Sci USA* 2006; In press

Organization as author

- 4 **Diabetes Prevention Program Research Group**. Hypertension, insulin, and proinsulin in participants with impaired glucose tolerance. *Hypertension* 2002; **40**: 679-686 [PMID: 12411462 PMID:2516377 DOI:10.1161/01.HYP.00000035706.28494.09]

Both personal authors and an organization as author

- 5 **Vallancien G**, Emberton M, Harving N, van Moorselaar RJ; Alf-One Study Group. Sexual dysfunction in 1, 274 European men suffering from lower urinary tract symptoms. *J Urol* 2003; **169**: 2257-2261 [PMID: 12771764 DOI:10.1097/01.ju.0000067940.76090.73]

No author given

- 6 21st century heart solution may have a sting in the tail. *BMJ* 2002; **325**: 184 [PMID: 12142303 DOI:10.1136/bmj.325.7357.184]

Volume with supplement

- 7 **Geraud G**, Spierings EL, Keywood C. Tolerability and safety of frovatriptan with short- and long-term use for treatment of migraine and in comparison with sumatriptan. *Headache* 2002; **42** Suppl 2: S93-99 [PMID: 12028325 DOI:10.1046/j.1526-4610.42.s2.7.x]

Issue with no volume

- 8 **Banit DM**, Kaufer H, Hartford JM. Intraoperative frozen section analysis in revision total joint arthroplasty. *Clin Orthop Relat Res* 2002; **(401)**: 230-238 [PMID: 12151900 DOI:10.1097/00003086-200208000-00026]

No volume or issue

- 9 Outreach: Bringing HIV-positive individuals into care. *HRS-A Careaction* 2002; 1-6 [PMID: 12154804]

Books

Personal author(s)

- 10 **Sherlock S**, Dooley J. Diseases of the liver and biliary system. 9th ed. Oxford: Blackwell Sci Pub, 1993: 258-296

Chapter in a book (list all authors)

- 11 **Lam SK**. Academic investigator's perspectives of medical treatment for peptic ulcer. In: Swabb EA, Azabo S. Ulcer disease: investigation and basis for therapy. New York: Marcel Dekker, 1991: 431-450

Author(s) and editor(s)

- 12 **Breedlove GK**, Schorheide AM. Adolescent pregnancy. 2nd ed. Wiczorek RR, editor. White Plains (NY): March of Dimes Education Services, 2001: 20-34

Conference proceedings

- 13 **Harnden P**, Joffe JK, Jones WG, editors. Germ cell tumours V. Proceedings of the 5th Germ cell tumours Conference; 2001 Sep 13-15; Leeds, UK. New York: Springer, 2002: 30-56

Conference paper

- 14 **Christensen S**, Oppacher F. An analysis of Koza's computational effort statistic for genetic programming. In: Foster JA, Lutton E, Miller J, Ryan C, Tettamanzi AG, editors. Genetic programming. EuroGP 2002: Proceedings of the 5th European Conference on Genetic Programming; 2002 Apr 3-5; Kinsdale, Ireland. Berlin: Springer, 2002: 182-191

Electronic journal (list all authors)

- 15 Morse SS. Factors in the emergence of infectious diseases. *Emerg Infect Dis* serial online, 1995-01-03, cited 1996-06-05; 1(1): 24 screens. Available from: URL: <http://www.cdc.gov/ncidod/eid/index.htm>

Patent (list all authors)

- 16 **Pagedas AC**, inventor; Ancel Surgical R&D Inc., assignee. Flexible endoscopic grasping and cutting device and positioning tool assembly. United States patent US 20020103498. 2002 Aug 1

Statistical data

Write as mean \pm SD or mean \pm SE.

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Express *t* test as *t* (in italics), *F* test as *F* (in italics), chi square test as χ^2 (in Greek), related coefficient as *r* (in italics), degree of freedom as *ν* (in Greek), sample number as *n* (in italics), and probability as *P* (in italics).

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