

# An Interesting Cutaneous Complication of Transvenous Transient Pacemaker Insertion at the Catheter Exit-Site

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## Abstract

Post-intervention complications after transvenous cardiac procedures are mostly related to venous structures and heart chambers. Cutaneous and subcutaneous complications are usually ignored. However, these complications can lead to devastating conditions such as extreme bleeding, infection, and ecchymosis, etc. The development of a fibroepithelial polyps following transvenous pacemaker insertion is very rare. The vascularity of this lesion necessitates prompt diagnosis and treatment to avoid unwanted outcomes. Here, we report an interesting case of a traumatized fibroepithelial polyp with hemorrhage as a complication of central line insertion for transvenous transient pacemaker lead in a 60-year male patient.

**Keywords:** Fibroepithelial polyp, internal jugular vein, pacemaker, transvenous

## Introduction

The internal jugular vein is a vital access port for vital procedures in cardiology practice such as transvenous pacemaker lead insertion, endomyocardial biopsy, central venous line, and right-sided hemodynamic monitoring via Swan-Ganz catheter<sup>(1,2)</sup>. Central line-related complications

depend on the duration of catheter presence, the patient's clinical characteristics, the operator's experience, the use of ultrasound guidance, and wound care. Among these complications are exit-site or systemic infections, central line thrombosis, hematoma, pneumothorax, embolism, and other mechanical vascular complications<sup>(3)</sup>. Non-infectious skin lesions of catheter insertion are usually limited to the



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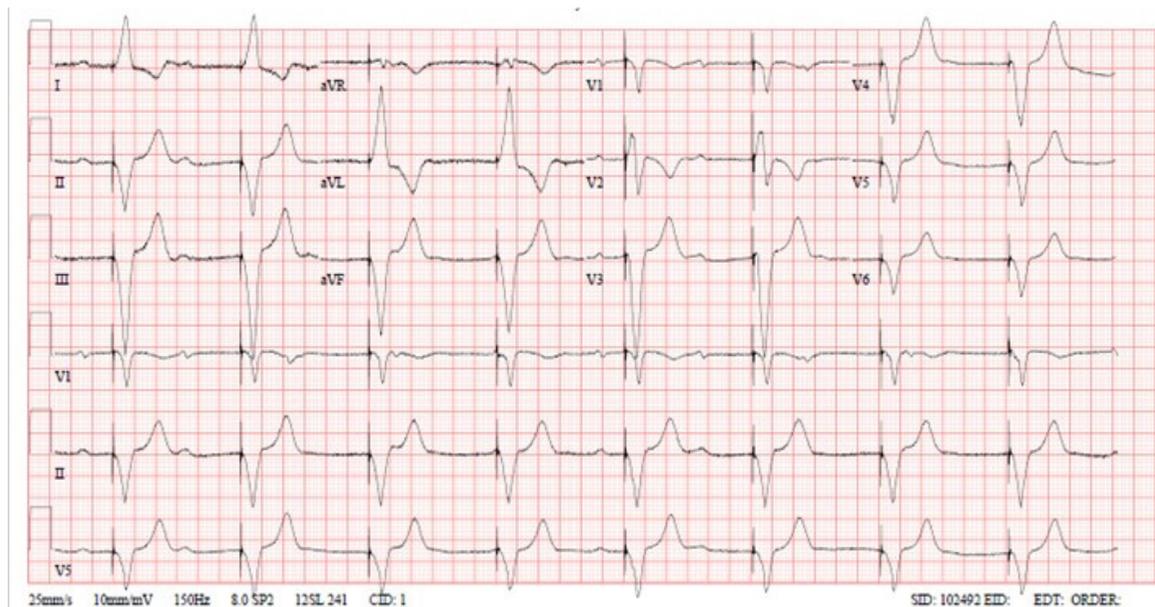
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subcutaneous layer of the skin, mostly ecchymosis, and it resolves with local medical care. Here, we present an interesting case of a traumatized fibroepithelial polyp with hemorrhage as a complication of central line insertion developed after transvenous transient pacemaker lead insertion in a 60-year male patient.

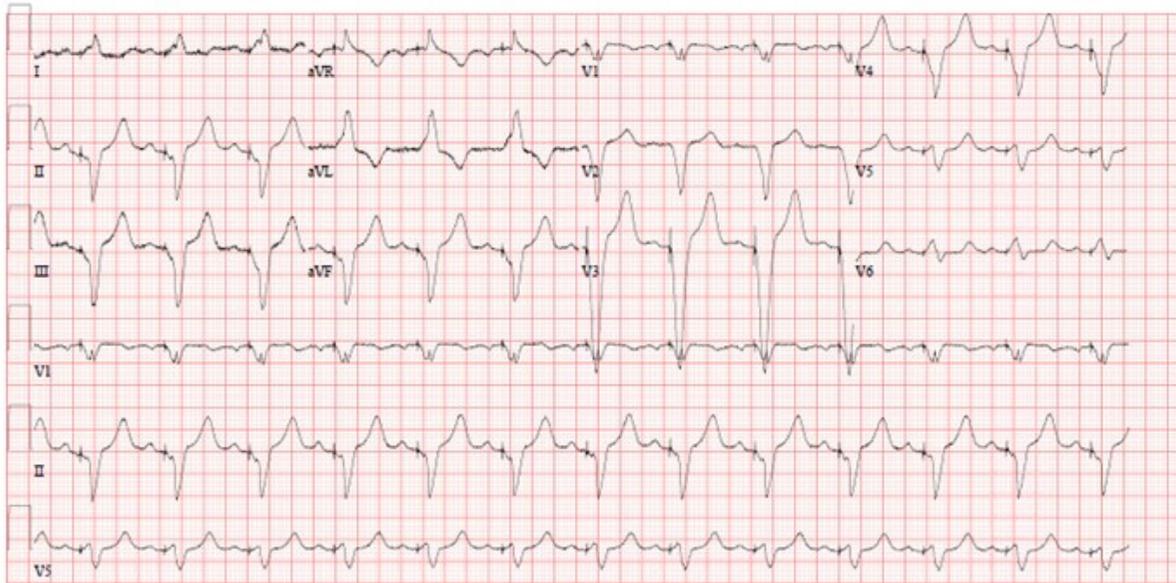
## Case Report

A 60-year-old male patient with a past medical history of diabetes mellitus (HA1c: 6.0% at admission under oral antidiabetics) and chronic kidney disease (creatinine, 419 micromol/L; glomerular filtration rate, 18 mL/min) was admitted to the medical ward due to dizziness, loss of consciousness of less than one minute in duration, and jerky movements. As a part of his neurologic investigations, brain computed tomography and brain magnetic resonance imaging were performed and the results were unremarkable. During electroencephalography testing, the patient was detected to have an eight-second advanced atrioventricular block (P-waves without escape rhythm) followed by a complete heart block (30 beats per minute with narrow-complex QRS escape rhythm) along with concomitant jerky movement and loss of consciousness.

The patient was transferred to the intensive care unit promptly after the insertion of bedside temporary transvenous pacing under ultrasound guidance via the right internal jugular vein (Figure 1). His echocardiography revealed a normal left ventricular ejection fraction without the valvular or pericardial disease. Thus, it was understood that his neurological findings were due to hypoxic spells during the complete heart block episodes. On the next day, coronary angiography was performed via the right radial artery with 15-milliliter iohexol contrast, it showed non-obstructive mild coronary artery disease for medical treatment. The patient did not develop contrast nephropathy at the follow-up. Routine screening of the nose as per the hospital policy showed that the patient was a carrier for methicillin-sensitive *Staphylococcus aureus*. Following the decolonization of methicillin-sensitive *Staphylococcus aureus* by having a daily shower with 4% chlorohexidine and topical application of 2% mupirocin bilaterally twice a day over the inner nasal area for five days, a dual-chamber permanent pacemaker was implanted in the left deltopectoral area by using the left subclavian vein 7 days after the day of transient transvenous pacemaker insertion (Figure 2). At the same



**Figure 1.** Electrocardiography of the patient with transvenous temporary pacemaker



**Figure 2.** Electrocardiography of the patient with dual-chamber permanent pacemaker

session, the transient transvenous pacemaker lead in the right internal jugular vein was removed.

The patient received intravenous cefazolin 2000 mg twice a day for 72 h followed by oral cefuroxime axetil 500 mg daily for two weeks. One month after the removal of the catheter at the right internal jugular, the patient was re-admitted due to a right neck lesion over where the right jugular vein puncture site was performed before (Figure 3). The superficial lesion over the right neck was red-colored, actively bleeding, painless, protruding, and pulsatile. It had been gradually increasing in size before the admission. It was lateral to the right internal jugular vein, heterogeneous in echogenicity, and 1.9x1.7x1.9 cm in size on the ultrasound examination. Intraoperatively, it was shown that the lesion had involvement with the arterial muscular branch with significant active bleeding. It was removed by excisional biopsy under general anesthesia followed by bleeding control. The biopsy result confirmed a traumatized fibroepithelial polyp (FEP) with hemorrhage. The lesion was negative for granuloma or malignancy. The patient was discharged without complication. No recurrence was seen in the one-year follow-up of the patient.



**Figure 3.** The photograph of the lesion over the right neck approximately 1 month after the removal of the catheter

## Discussion

Central venous lines are inevitable routes to save lives. Internal jugular veins are one of the most frequently used access to obtaining central venous lines. However, complications will also be expected according to the operator's experience, the anatomic site of the access route, the use of ultrasound guidance<sup>(4,5)</sup>. Most of these

complications are mechanical, vascular, embolism, or infection-related<sup>(6,7)</sup>. In this case report, we present a case of traumatized FEP with hemorrhage as a complication of central line insertion developed after transvenous transient pacemaker lead insertion in a 60-year male patient.

Although post-insertion subcutaneous hematoma is a very common and well-known complication and can be easily mixed with FEP, cutaneous FEP formation together with vascular involvement has not been reported in the literature.

The etiology of fibroepithelial polyps is not clearly explained, but may involve trauma, the presence of diabetes, chronic irritation, allergic factors, and hormonal changes<sup>(8,9)</sup>. In our case, the patient had long-lasting trauma due to catheter *in situ* and the presence of diabetes mellitus. Ignoring such lesions can lead to excessive growth and bleeding complications<sup>(9)</sup>. In our case, the lesion had vascular involvement with active bleeding. Thus, the excisional removal of the lesion under general anesthesia cured the patient totally.

Although there may be a role of infection in the formation of dermal polyps among renal transplant patients or in veneral/urologic polyps, the role of local infection in the formation of polyps over transvenous line insertion exit-sites needs further investigation. Most likely, the underlying mechanisms of polyp formation depend on the location of the polyps and host factors<sup>(10,11)</sup>. The pathological examination of the lesion in our case did not show any significant culture growth.

In conclusion, skin lesions developed after the catheter insertion should be evaluated carefully, possible vascular connection and/or vascularity should always be kept in mind, and their excisional removal should be done under a surgical setting.

### Ethics

**Informed Consent:** The patient's consent was obtained for the article.

**Peer-review:** Externally and internally peer-reviewed.

### Authorship Contributions

Concept: Elizzi KR, Ede H, Khan SH, Asaad NA, Design: Elizzi KR, Ede H, Khan SH, Asaad NA, Data Collection and/or Processing: Elizzi KR, Ede H, Khan SH, Asaad NA, Analysis and/or Interpretation: Elizzi KR, Ede H, Literature Search: Elizzi KR, Ede H, Writing: Elizzi KR, Ede H, Khan SH, Asaad NA.

**Conflict of Interest:** The authors declare no conflicts of interest concerning the authorship or publication of this article.

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