To the Editor: Moderator band (MB) is a part of the septomarginal trabeculation, which not only supports the anterior papillary muscle (APM) of the tricuspid valve but also connects it to the free wall. Nevertheless, with the advent of intracardiac echocardiography (ICE), electrophysiologists are now aware of the arrhythmogenic role of MB besides its mechanical function. MB-originated ventricular tachycardia or ventricular fibrillation (VT/VF) is a kind of idiopathic malignant arrhythmia in the absence of structural heart disease, which is frequently triggered by a premature ventricular contraction (PVC) from the same site.\(^1\) As the mechanism of this kind of arrhythmia is not well illustrated, previous research has reported the involvement of the Purkinje system of the right ventricle (RV), although catheter radiofrequency (RF) ablation delivered to the site displaying Purkinje potential showed limited efficacy.\(^1\)\(^,\)\(^3\)\(^,\)\(^4\) Herein, we present a case of MB-originated VT/VF in a 29-year-old woman in whom ablation based on the anatomical substrate (free wall and septum insertions of MB) proved successfully.

A 29-year-old woman experienced a sudden episode of syncope and was transferred to a local hospital. Frequent unifocal PVC was observed, and the PVC showed a left bundle branch block (LBBB) pattern with precordial transition later than V4 [Figure 1a], some of which precipitated recurrent episodes of VT [Figure 1b]. Moreover, some of the PVC-induced VF that was restored to sinus rhythm through electrical cardioversion [Figure 1c] and implantable cardioverter-defibrillator (ICD, Lumax 340 VR, BIOTRONIK SE & Co. KG, Berlin, Germany) was implanted for the secondary prevention of sudden cardiac death (SCD). However, during the 4 months after ICD implantation, four shocks for repeated VF were conducted, and the patient was referred to our department. Initial workup included a baseline 12-lead electrocardiography (ECG) conducted, and the patient was referred to our department. Initial workup included a baseline 12-lead electrocardiography (ECG) with frequent PVC, normal transthoracic echocardiography, and His-Purkinje conduction system of the RV.\(^3\)\(^,\)\(^5\) An evident sharp Purkinje potential that preceded the ventricular activation force ranging from 9 to 31 g. The patient underwent an uneventful procedure with normal baseline 12-lead ECG and echocardiography and did not require antiarrhythmic drugs postablation. During the 12-month follow-up period, ICD interrogation was absent of any VT/VF event. Regardless of the fact that identical PVC pattern was recorded in Holter, no VT/VF was induced. The exact nature of the MB-VF is not well elucidated, although some researchers have suggested a connection between MB-VF and His-Purkinje conduction system of the RV.\(^3\)\(^,\)\(^5\) An evident sharp Purkinje system potential that preceded the ventricular activation during the culprit PVC supported the aforementioned hypothesis.\(^6\) However, the success rate of ablation MB showing P potential was only 50%.\(^3\)\(^,\)\(^4\) In this case, we focused on ablation of the free wall and septum insertions of MB, which proved successful. Despite the recurrence of PVC indistinguishable as before, the ablation was not considered a failure, as no VT/VF was triggered by those unexpected ventricular beats. However, the coupling interval of PVC had prolonged from 240 ms to 440 ms after ablation. It is therefore reasonable to speculate that the insertion sites of MB and RV play a critical role in provoking deteriorated ventricular arrhythmia. The anatomical structure of MB might determine its arrhythmogenic role. As part of the septomarginal trabeculation, the MB crosses from the septum to the RV free wall and supports the APM of the tricuspid valve. As the name suggests, MB was thought to protect against overdistention of the RV.\(^7\) The mechanical stretch...
and misarranged cardiomyocyte renders the insertion sites more vulnerable to arrhythmia generation. Further, a previous study showed that the insertion sites were abundant with Purkinje fibers and cholinesterase-containing nerve fascicles, which gave rise to the possibility that a mechanical stretch of RV might influence its electrophysiological properties. In addition, the APM, also a potential substrate for idiopathic ventricular arrhythmia, is anatomically connected with MB, and ablation of the ventricular insertion to papillary muscle proved a perfect target for PM-origin ventricular arrhythmia.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient had given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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**Figure 1**: The electrocardiograph and the anatomy of moderator band of the patient. (a) Characteristic PVC with a left bundle branch block pattern, late precordial transition (V5). (b) Ventricular tachycardia was induced by PVC. (c) The PVC-induced ventricular fibrillation that was restored to sinus rhythm through electrical cardioversion. (d-f) Intracardiac ultrasound showed the moderator band (red arrows), the free wall of right ventricle (white arrows), the ablation catheter (yellow arrows), and intracardiac echocardiography catheter (black arrow). PVC: Premature ventricular contraction.