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Accordion Phenomena: An Angiographic Illusion.

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ABSTRACT

Concertina or accordion effect is appearence of pseudolesions that appear in tortuous vessel when it is straightened by a guide wire or a catheter during the course of percutaneous coronary intervention (PCI). It is essential to differentiate this from potentially serious complications like dissection , coronary spasm and thrombosis , which have a bearing in management. This case is about a transient angiographic defect, the accordion phenomenon, observed during the course of PCI in the tortuous right coronary artery.

Keywords: accordion or concertina effect, pseudolesions , transient angiographic defect, complications

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INTRODUCTION

Concertina or accodion effect is a transient angiographic defect observed during PCI. Concertina effect is mainly induced by a stiff guidewire or catheter in a tortuous coronary artery. It happens due to geometrical adaptation of the artery. In most instances is a benign effect and does not require special intervention. During procedure, it is reasonable to diagnose concertina effect in order to select correct treatment strategy. It is essential for the interventional cardiologists to identify such a rare iatrogenic events because they are basically benign and wrong diagnosis may result in unnecessary complex procedures, changing a completely reversible condition into an iatrogenic complication. Herein we describe a clinically significant accordion phenomenon observed during the course of PCI which was promptly recognised and was managed by pulling out the guide wire and re-establishing the the coronary geometry.

Case Report

A 63 year old male , known case of hypertension , presented to cardiology out- patient department with exercise induced angina(CCS grade 2) of 2 months duration.General and systemic examination were unremarkable. Non- invasive investigations including electrocardiogram and echocardiogram were normal. Stress test was 7 Mets positive.He was planned for coronary angiography.Angiogram revealed dominant tortuous right coronary artery with mid 80 % stenosis (Fig 1). LAD and LCx did not reveal any hemodynamic significant stenosis. Percutaneous coronary intervention to RCA was decided. RCA was engaged with a JR3.5 6F catheter. A Sion blue floppy wire0.014 was used to cross the lesion and the wire was placed distally.Following wiring we noticed multiple pseudo lesions across the vessel (Fig 2).Despite intracoronary nitroglycerine the pseudo lesions persisted. Mid RCA lesion was stented with a 3x 32mm Metafor drug eluting stent with 0 % stenosis in stented area(Fig 3).After removing the guide wire the pseudo lesions disappeared and result was satisfactory. (Fig 4).

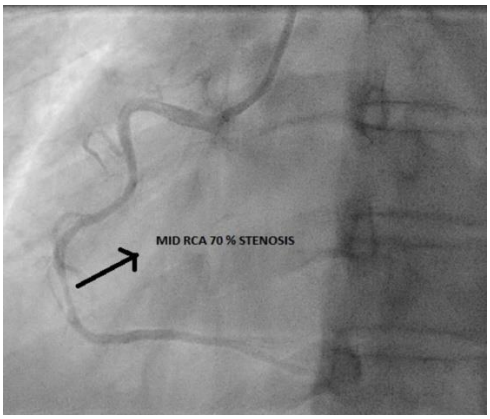

Figure 1: Coronary Angiogram in LAO Cranial 40 view showing lesion in mid right coronary artery

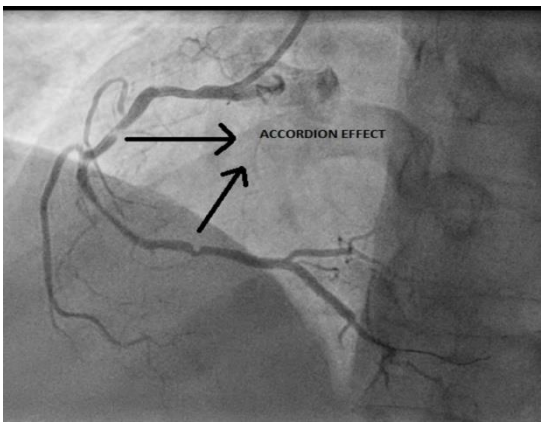

Figure 2 : RCA in LAO cranial 40 view showing multiple irregularities in proximal and distal vessel suggestive of accordion effect.

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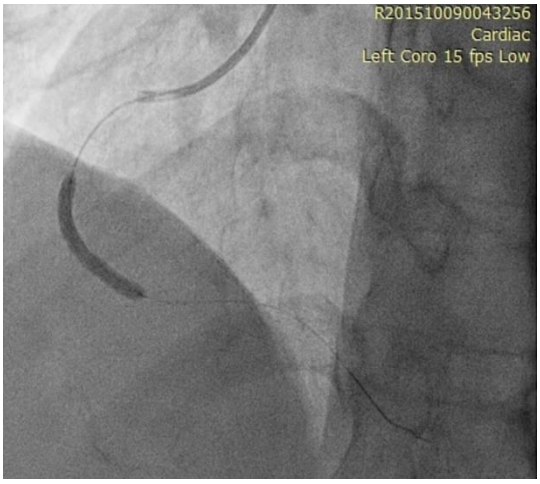

Figure 3: Metafor 3/32 mm drug eluting stent across mid RCA lesion at 12 atm.

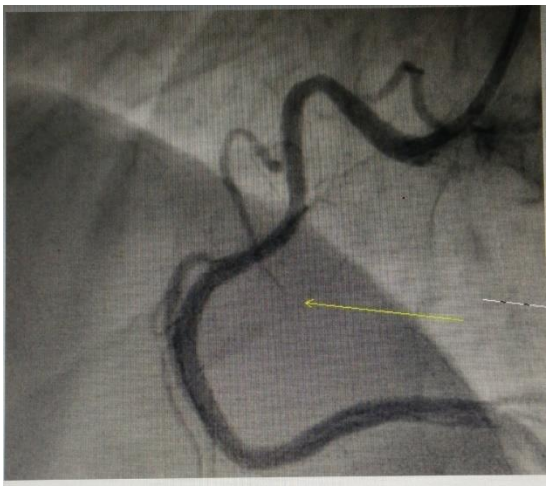

Fig 4: Final angiographic view of right coronary artery after floppy guide wire removal. Note the disappearance of proximal and distal RCA pseudo lesions.

DISCUSSION

Appearance of concertina is not uncommon during the percutaneous coronary intervention with overall incidence of 0.4 % [1]. It is produced due to mechanical alteration of the geometry and the curvature of the vessel during PCI after passing a guide wire or catheter balloon [2]. RCA is commonly involved because it is deep seated in the epicardial fat tissue and courses freely in the AV groove [3]. It is commonly mistaken for vasospasm or dissection which if not recognised may end up in unnecessary lengthening and iatrogenic complication of the procedure. Vasospasm usually respond to nitrates,however pseudo lesions do not respond to these and they become normal after removing the guidewire which was seen in our case [4].

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