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A Broken Railway: A Subclavian Arterial Stent Fracture

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A 63 year-old male moving company worker, presented with left arm pain when lifting some luggage for 3 months. His blood pressure revealed 84/53 and 134/72 mmHg in left and right arm each. Computed tomographic angiography (CTA) showed a total occlusion of the left proximal subclavian artery (**Figure 1A**). Percutaneous transluminal angioplasty (PTA) with a balloon expandable Express LD® stent (7×57 mm; Boston Scientific, Marlborough, MA, USA) was performed successfully, however 11 days postoperatively his symptom reoccurred and stent fracture was suspected in routine chest X-ray, confirmed by CTA and causing a significant stenosis (**Figure 1B-E**). This lesion was re-stented with self-expandable Absolute Pro® stent (7×40 mm; Abbott Laboratories, Abbott Park, IL, USA) (**Supplementary Videos 1-4**). Six months post-rePTA treatment, there were no symptom and no definite stent fracture on chest X-ray (**Figure 1F and G**). The systolic blood pressure showed 120–130 mmHg in both arms.

We used self expandable nitinol stent in stent-fractured lesion, which is more flexible than balloon expandable stainless steel stent. Both stents can be used in subclavian artery lesion.[1] Although being unclear for the cause of these events, a recent study revealed the presence of long lesions and heavy calcification to be significant independent predictors.[2] The principal mechanism can be the mechanical fatigue of stent from frequent wide-angled shoulder movement or repeated strong pulling force of upper extremities as well as overexpansion.[3] Different blood pressure in both arms, upper extremities pain or suspicious stent finding on chest X-ray after PTA can help us identify the subclavian arterial stent fracture.

Written informed consent was obtained from the patient.

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Conflict of Interest

The authors have no financial conflicts of interest.

Data Sharing Statement

The data generated in this study is available from the corresponding author upon reasonable request.

Author Contributions

Conceptualization: Yoon SJ, Park JK; Investigation: Oh SJ; Methodology: Ryu SJ, Oh SJ; Software: Kim H; Supervision: Yoon SJ, Jang JY; Writing - original draft: Park JK; Writing - review & editing: Ryu SJ, Lee H, Jang JY, Chun KH.

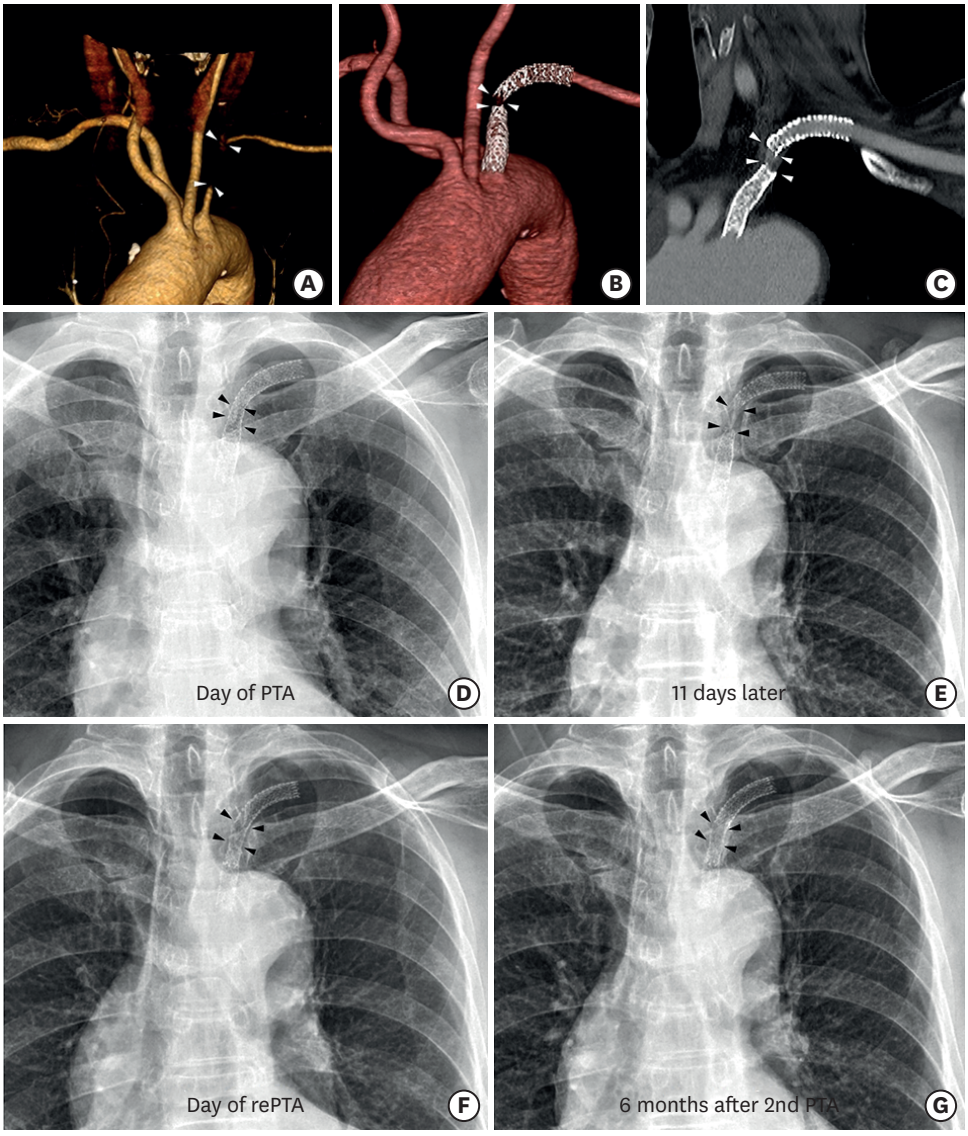

Figure 1. (A) CTA showed a total occlusion of the left proximal subclavian artery (arrowheads). (B, C) CTA showed a stent fracture of left subclavian artery (arrowheads). (D) Chest X-ray on the day of PTA showed continuity of left subclavian stent (arrowheads). (E) Chest X-ray 11th day after PTA showed a stent fracture of left subclavian artery at mid portion (arrowheads). (F, G) Chest X-ray on the day of and 6 months after re-PTA showed repaired continuity of left subclavian stent (arrowheads).
CTA = computed tomographic angiography; PTA = percutaneous transluminal angioplasty.

SUPPLEMENTARY MATERIALS

Supplementary Video 1

Angiography after guidewire passing though the stent fracture lesion successfully.

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Supplementary Video 2
Angiography after balloon angioplasty with percutaneous transluminal angioplasty balloon (7.0×40 mm).

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Supplementary Video 3
A video of expanding of a self-expandable stent (7×40 mm; Abbott Laboratories, Abbott Park, IL, USA).

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Supplementary Video 4
Final angiography after adjuvant ballooning.

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