

An Unforeseen Consequence: Spinal Cord Infarction After Transarterial Chemoembolization for Bleeding Locally Advanced Breast Carcinoma

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Introduction

Breast cancer (BC) in Malaysia is the most common cancer diagnosed among female population which has increased to 34.1% from 32.1% in the year 2011 to 2016. Trans-arterial chemoembolization (TACE) is a minimally invasive procedure that involves combining localized chemotherapy with embolization and it is gaining popularity in inoperable cases of breast cancer. TACE is generally considered safe but there has been some debilitating complication reported in current practice.

She underwent TACE procedure whereby access was obtained by femoral artery puncture with super selective subclavian artery cannulation. Internal mammary artery, lateral thoracic artery and thoracodorsal artery were identified as predominant the tumor feeding arteries. Chemo saturation was performed using 5 fluorouracil, Mitomycin and Doxorubicin. 70% dose were delivered via internal mammary artery, 25% via lateral thoracic artery and the rest via thoracodorsal artery. This is followed by gel foam embolization of the respective arteries and its branches to prevent drug embolization.

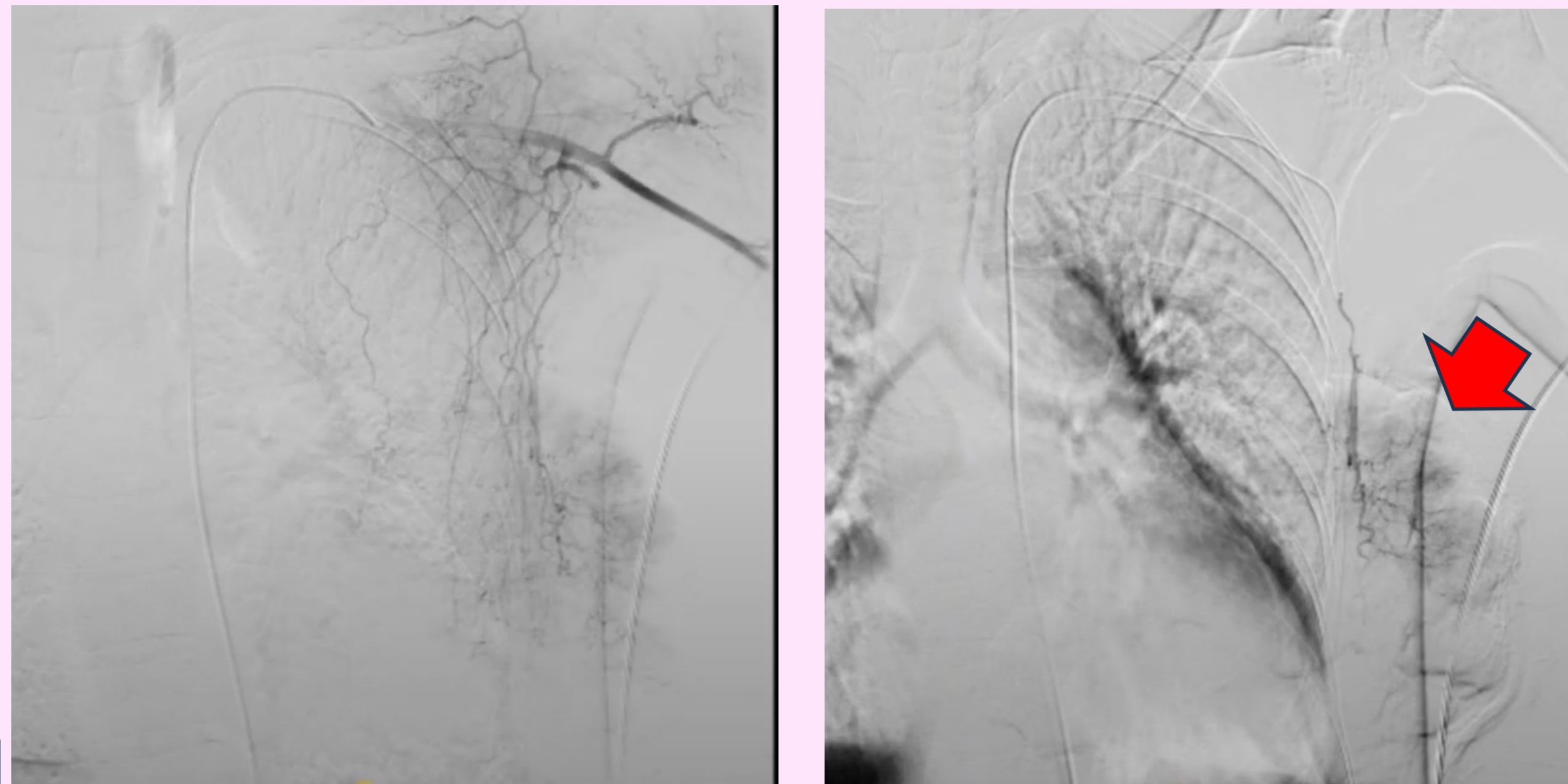


Figure 2.0
Showing pre-embolization angiography with obvious contrast blush at breast lesion (marked with red arrow)

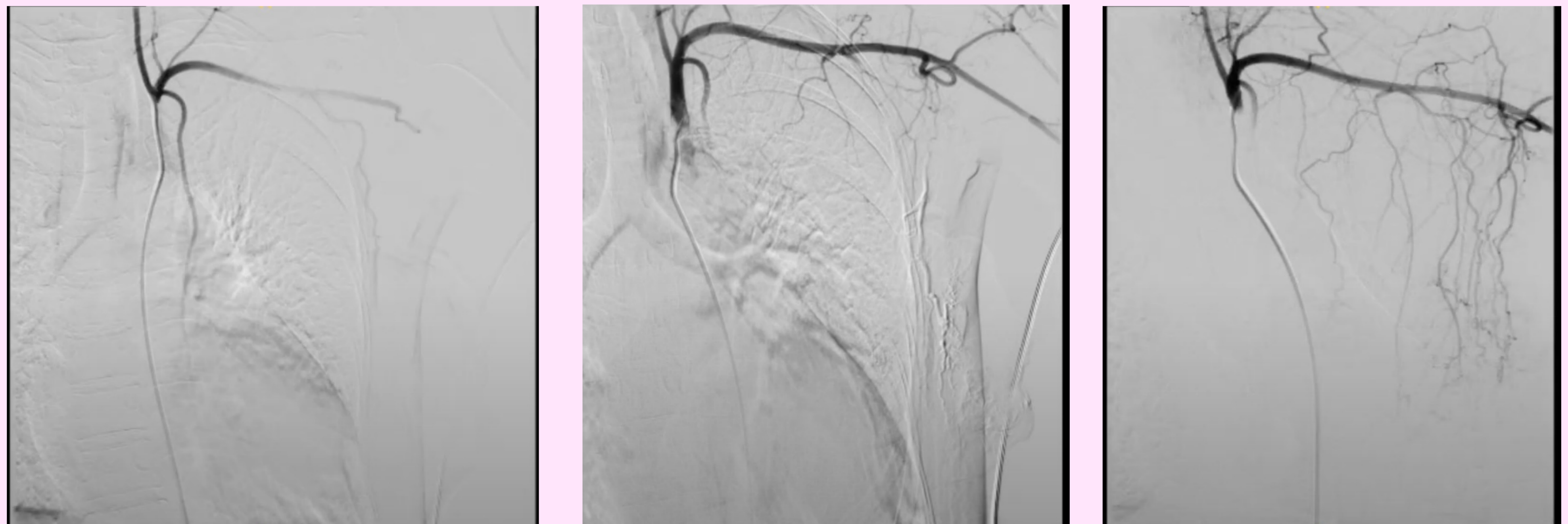
CASE SUMMARY

This case report illustrates a case of spinal cord infarction following chemoembolization of a bleeding breast cancer.

A 56-year-old lady presented with skin ulceration and fungating mass which was associated with occasional bleeding over left breast (cT4). Core needle biopsy were carried out and the pathological examination revealed invasive breast carcinoma. Computed tomography (CT) staging shown to have local invasion to pectoralis major muscles with distant metastasis to bones.

In view of intractable bleeding from breast carcinoma with inoperable disease condition, she was offered TACE as part of multimodal treatment to control her symptoms.

Figure 3.0
Showing post-embolization angiography with occlusion of feeding vessels without any contrast blush at breast lesion



Unfortunately, patient developed sudden onset of lower limb weakness post procedure. A thorough neurological examination revealed Medical Research Council (MRC) score of 0 for lower extremity while the upper extremity showed an MRC score of 5. Deep tendon reflex and anal sphincter tone was absent while Babinski reflex present. Loss of sensation and loss of proprioception detected below the T4 dermatome.



Figure 1: Axial view of left breast lesion invading into intercostal muscles and ribs



Figure 4.0
Urgent Magnetic resonance imaging of whole spine performed which in T2 weighted scans showing T3 to T6 level cord infarction

The patient was initially monitored for any further progressive neurological symptoms in acute phase and subsequently enrolled into aggressive physiotherapy. Despite no further neurological deficit in the immediate 6 months of follow-up, patient eventually succumbed to her illness.

Discussion

The primary blood supply to the spinal cord is provided by single anterior spinal artery (ASA), which originates from subclavian artery and the paired posterior spinal arteries (PSA). These spinal arteries form collaterals with segmental medullary and radicular arteries which are derived from cervical, lumbar and intercostal arteries. It is believed that embolization of any thoracic arterial branch can reduce blood flow to ASA and disrupt the extensive network of segmental and collateral blood supply. This reduction leads to ischemia eventually resulting in spinal cord infarction.

National Acute Spinal Cord Injury Study (NASCIS 2) recommends large dose methylprednisolone steroid therapy for such conditions. Although usage of high dose steroids are considered a treatment option, it is not the standard care in view of reproducibility functional significance and risk of complications, benefits are still questionable.

Conclusion

Spinal cord infarction post TACE is not uncommon and recognizing this association is essential for informing patients about potential procedure outcomes, implementing preventive measures, and managing side effects effectively to reduce significant morbidity and mortality risks.