

## LETTER TO THE EDITOR

### Re: Volleyball-Related Ischemia of the Hand

Ischemia of the forearm and hand due to peripheral arterial emboli has in the majority of cases an atherosclerotic or cardiogenic etiology. Also direct trauma to the upper extremity may cause vascular injuries leading to ischemia of the hand and forearm.

In 1993 we reported the cases of three professional volleyball players with acute ischemia of the right hand and forearm without nerve symptoms and discussed the possible etiology and treatment [1]. Since then we have encountered another three, also well-trained, volleyball players with the same clinical symptoms. In all instances the complaints were initially attributed, by the consulted physician, to repeated microtrauma of the hand caused by vigorous ball contact, as occurs during volleyball.

The six patients who were referred to us for a second opinion were all shown at angiography to have small microemboli in the digital arteries of the right hand. In three patients we found an aneurysmatic dilatation of the right posterior circumflex humeral artery (PCHA); in the other three patients the right PCHA was occluded. We consider occlusion of the PCHA to represent local thrombosis of a diseased PCHA. We then speculated on whether this could be a volleyball players' disease caused by stretching and repeated microtrauma to the PCHA during maximum upward rotation of the scapula and downward displacement of the humeral head during a smash in the game of volleyball. Recently we saw another young patient, a professional circus trapeze artist, with severe ischemia of both hands. Angiography revealed aneurysmatic dilatation of his right PCHA and an occlusion of his left PCHA and scattered embolic occlusions in the digital arteries of both hands (Fig. 1). Hanging and "flying" the trapeze will cause maximum force and stretching of the shoulder comparable with

playing professional volleyball. In the literature there is one report of a baseball pitcher with an occluded PCHA and embolization to the digit [2]. Retrograde embolization to the brachial artery from the short PCHA, due to the vigorous shoulder movement during pitching, can be the explanation for the peripheral emboli. All our patients with occlusion of the PCHA were treated with a low dose of aspirin (100 mg daily) for 6 months and withdrawal from the game for 3 months. Two aneurysms were embolized with a catheter technique using occlusion coils and one was operated on to exclude the aneurysm. In follow-up all the volleyball players became asymptomatic with only minor complaints about the digits of the right hand in the winter.

From our experience in a small population, we now think that this pathology may not be as rare as we previously thought. We feel that the lack of awareness of aneurysmatic or thrombotic disease of the PCHA might be the cause of misdiagnosis of this ailment. Volleyball players, baseball pitchers, and probably also professional tennis players may all be at risk for this problem.

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### References

1. Reekers JA, den Hartog BMG, Kuyper C, Kromhout JG, Peeters FLM (1993) Traumatic aneurysm of the posterior circumflex humeral artery: A volleyball player's disease? *J Vasc Interv Radiol* 4:405-408
2. McCarthy WJ, Yao JST, Schafer MF, Nuber G, Flinn WR, Blackburn D, Suker JR (1989) Upper extremity arterial injury in athletes. *J Vasc Surg* 9:317-327

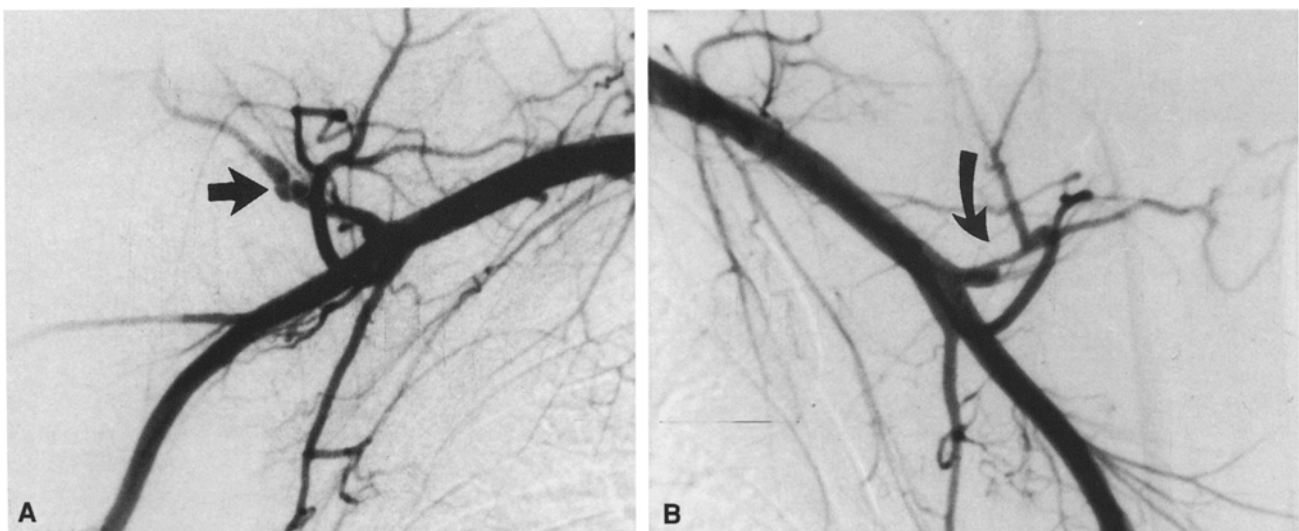


Fig. 1. Angiography from the right (A) and left (B) subclavian artery in a young trapeze artist. The right shows a patent PCHA with

aneurysmal dilatation (straight arrow); the left shows occlusion of the PCHA (curved arrow).