Unusual Cases of Hypothenar Hammer Syndrome

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Objective: Hypothenar hammer syndrome (HHS) is a rare occupational disease. The risk group of HHS is patient whose dominate hand used as a hammer. Our study report unusually cases in Chiang Mai University Hospital.

Result: 19 year-old basketball player had right ulnar artery aneurysm for two months. After operation, his symptom was relieved and returned to play basketball again. 65 year-old housekeeper had non-dominated hand ulnar artery aneurysm for two years. After operation she still had hand claudication due to poor run-off vessel.

Conclusion: HHS is previously state in risk group. But from our report there was a risk in different occupation.

Keywords: hypothenar hammer syndrome, ulnar artery aneurysm

Introduction

Hypothenar hammer syndrome (HHS) is a rare occupational disease. This condition relates to the patient who has a repetitive trauma of Ulnar artery, which is underlined by the Hamate bone. The jobs that require regular use of the patients’ dominant hand the patients to act as a hammer such as carpenter and builder increase the risk of this syndrome. After a period of repetitive trauma, Ulnar artery gradually be damaged and may pathologically transform into Ulnar artery aneurysm or Ulnar artery thrombosis. The patient may present with hypothenar pulsatile mass with or without tenderness, thrombosed aneurysm or thrombosed ulnar artery may cause hand claudication especially on ulnar site or distal embolization to digits. The rupture aneurysm is very rare.

There are few reports on the incidence of HHS. The prevalence of this condition is estimated at 14% in the population at risk. In contrast, the Incidence of this condition in the patient who present with hand vascular problem was only 1.1%–1.6%. Moreover there are some reports of HHS in an unusual cases like hockey player, baseball player patient or occur in non-dominant hand. There is still no standard treatment for HHS due to difference in clinical symptoms and less of previous study information. This report will describe the two unusual cases who received treatment in Chiang Mai university hospital during 2012–2014.

Case 1

19- year-old University basketball player presented with a painful pulsatile mass at hypothenar area on his right hand. He noticed that his painful mass occurred during basketball match two months ago. This mass was slow progression and increased in pain. He did not have hand claudication or distal embolized symptoms. He neither had trauma history nor associated underlying disease. His physical examination revealed an expansile pulsatile mass at right hypothenar area with 3 cm in diameter. Both radial and ulnar artery pulse are normal and Allen’s test was also normal.

Computed tomographic angiography (CTA) shown a fusiform aneurysm of distal right ulnar artery involved superficial palmar arch and fifth common palmar digital artery. Aneurysm size was 2.1 cm in diameter and 8.7 cm long. Aneurysm lied on the Hook of Hamate bone (Fig. 1). Normal superficial palmar arch was observed.

Open aneurysmectomy and interposition with reversed great saphenous vein (GSV) graft was performed (Fig. 2). After operation, normal radial and ulnar pulse were observed. No clinical of hand claudication or distal embolization presented. Patient could return to play basketball again in eight weeks after the operation. He engaged in regular follow up with our surgical team and good patency of graft was observed for 18 months.

Case 2

63-year-old housekeeper suffered from pain on the left hand for the last two years. She noticed that a pulsatile expansile mass at hypothenar was developed at that period. Pain mostly occurred when she did housework like cooking, washing but the pain did not bother her much. Two
months ago, she noticed that she had claudication symptoms on her left ring finger and little finger. Muscle and skin of her left hand had an atrophic change. Her physical examination showed a painful pulsatile expansile mass size 2 cm at left hypothenar area without a sign of distal embolization. The chronic arterial occlusion like atrophy of forth, fifth digit and hypothenar muscle, hair loss, bluish color were observed. Her radial pulse was normal but ulnar pulse was diminished and delayed Allen’s test on the ulnar site.

CTA showed an aneurysm of left distal ulnar artery over the Hook of Hamate bone with a size of 2.0 cm in diameter and 2.2 cm long. Thrombosis of both distal superficial and deep palmar arches of hand was noticed. Blood supply of her left hand was provided by radial artery and its collateral (Fig. 3).

Open aneurysmectomy and interposition with reversed GSV graft to deep palmar arch were performed. One month after operation, she was free from pain but the claudication symptom was the same as before an operation, pulse examination and Allen’s test were normal. Clinical follow up at 6 months after the operation, her claudication did not improve and her pulse examination was abnormal. Her ulnar pulse was absent with delayed Allen’s test at ulnar site. CTA was requested and thrombosed of interposition graft was observed. She received a conservative management. Only fourth and fifth digit claudication symptoms remained.

**Discussion and Conclusion**

HHS is rare vascular condition that related to repetitive occupational exposure to trauma of the hand. In Thailand, this condition has not been reported before. Under recognition from both patients and physicians may be its cause. This condition mostly occurred among occupation at risk such as carpenter, builder or labour, which reflects a poor socioeconomic status in Thailand. Early recognition may be low in this population. Hence, under-diagnosis, late diagnosis or misdiagnosis may occur and result in poor treatment outcomes.

In this report, the cases did not have at risk occupation. Basketball player and housekeeper also have a risk of repetitive trauma of ulnar artery to Hook of Hammate bone. Not only occupation is considered as a high risk group of HHS but repetitive hand activity is also important.

The timing of diagnosis and treatment are important factors to the outcome of the treatment. In delayed diagnosis, it may be possible to have further thrombosis of the run-off artery and the patient may suffer from the complication of HHS such as distal embolization or hand claudication. Early diagnosis and treatment may improve treatment outcome. In our report, a basketball player came to see the doctor in 2 months after his symptoms developed. After the operation, a good patency of bypass graft was observed. In the housekeeper case, she had the symptom for 2 years before received the treatment. Her run-off artery and patency of the bypass graft was poor. After the operation, she still had a hand claudication symptoms.
HHS is still under diagnosis and treatment due to unrecognized by the patients and their primary care physician. The incidence of this condition is still uncertainty. The early symptom of HHS is only pain on hypothenar, the patient may not concern until it has a serious complication like thrombosis or distal emboli. To educate risk groups patients and recognized primary care physicians may be helpful for early diagnosis and treatment.

Disclosure Statement

All authors have no conflict of interest.

References