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Case Report

Ruptured Mycotic Aneurysm of the Common Carotid Artery: A Case Report

Dong-il Kim, Byung-soo Park, Dong Hyun Kim, Dae Jung Kim, Youn Joo Jung, Sang Su Lee, and Hyuk Jae Jung

Department of Surgery, Pusan National University Yangsan Hospital, Yangsan, Korea

Mycotic aneurysms of the common carotid artery (CCA) are very rare and warrant surgical treatment to prevent rupture and death. A 89-year-old man who complained of a sore throat and swelling of the right side of neck. He had no history of trauma or neck infection. Physical examination revealed hard and pulsatile mass. Computed tomography showed initially pseudoaneurysm rupture on the right CCA with surrounding inflammation. The emergency operation revealed mycotic aneurysm rupture with CCA necrosis and was successfully done by wide debridement and carotid artery resection with interposition bypass. The resected tissue and blood culture grew growth of *Staphylococcus aureus* group. We report a rare case of mycotic aneurysm of right CCA that treated by bypass interposition.

Key Words: Mycotic aneurysm, Carotid artery, Carotid artery aneurysm

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Corresponding author: Hyuk Jae Jung
Department of Surgery, Pusan National University Yangsan Hospital, 20 Geumo-ro, Mulgeum-eup, Yangsan 50612, Korea
Tel: 82-55-360-2124
Fax: 82-55-360-2154
E-mail: goodsight@empas.com
http://orcid.org/0000-0003-3407-5855
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INTRODUCTION

Aneurysms of the common carotid artery (CCA) are rare and mycotic aneurysms of the CCA are even more rare. Most mycotic aneurysms are caused by traumas and infections, but some of them have unclear etiology [1].

We present a rare case of ruptured mycotic aneurysm of CCA, and its first case of surgical treatment in Korea.

CASE

A 89-year-old man presented to the emergency room with right cervical swelling, pain and sore throat for duration of 1 week. There was no history of neck trauma, infection and previous stroke. He had a past medical history of diabetes mellitus (DM). Physical examination revealed hard and pulsatile mass on right neck.

The body temperature was 36.5°C, blood pressure was 135/80 mmHg, and pulse rate was slightly increased at 120 beats/min on admission. Since the primary impression was neck abscess, he was treated by otolaryngology doctor and was checked for neck computed tomography (CT).

The CT scan showed that 4.8×3.5 cm sized fluid collection with peripheral enhancement in the right anterior neck, extending to the carotid space and upper mediastinum (Fig. 1). The CT finding was suspicious for hematoma or abscess. About 1.8 cm sized pseudoaneurysm arising from the anterior aspect of right CCA was also observed. There was no abnormal lesion at vertebral arteries, left CCA and the Circle of Willis.

Under the diagnosis of pseudoaneurysm, the patient was transferred to our department of vascular srugery for an emergency surgery.

There was a 5 cm size of pulsatile mass, suspecting pseudoaneurysm of CCA (Fig. 2A). The circumference of the mass was dissected, and proximal and distal CCA were identified and clamped (Fig. 2B). The aneurysmal sac was opened and we could identify a ruptured wall of CCA with inflammation and necrosis. Ruptured aneurysm sac was resected including the normal CCA, and debridement of

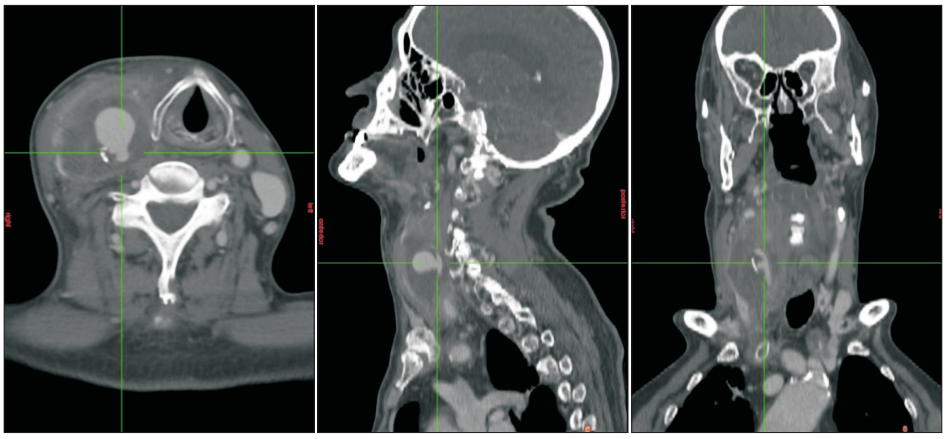

Fig. 1. Preoperative images of neck. Computed tomography showed that 4.8×3.5 cm sized fluid collection with peripheral enhancement.

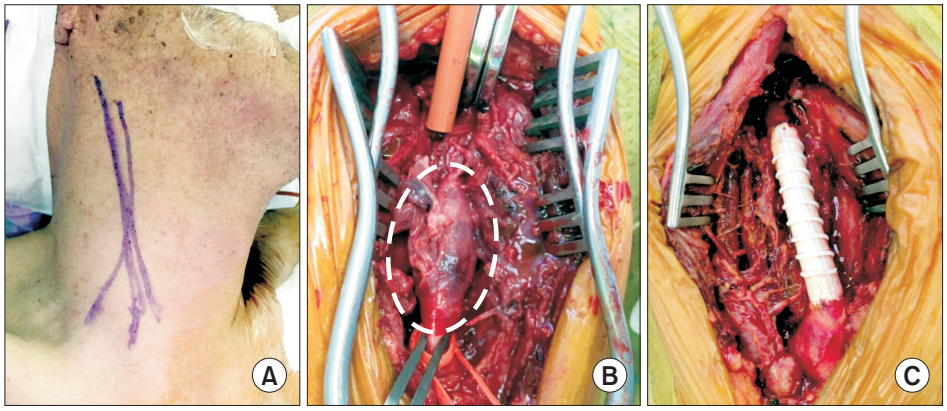

Fig. 2. Preoperative and postoperative images. (A) A 5 cm size of pulsatile mass was observed in right neck. (B) Ruptured 5 cm sized aneurismal sac (dotted line) was shown after dissection. (C) An interposition bypass was taken using a 8 mm polytetrafluoroethylene graft.

surrounding inflammatory tissues was performed. Using a 8 mm rifampin-soaked (1,500 mg of rifampicin in 1,000 mL of normal saline) polytetrafluoroethylene (PTFE) graft, interposition bypass was taken during 27 minutes clamping time (Fig. 2C). The surgical site was also irrigated with rifampicin diluted normal saline. The operation was done without any other complication.

The resected tissue and blood culture grew *Staphylococcus aureus* group sensitive to ciprofloxacin. Before the results of tissue culture was confirmed, we used third generation cephalosporin with metronidazole, but after confirming the results we changed to intravenous ciprofloxacin. The patient was discharged at 7 days after the operation without any complication.

After discharge, he was administered oral ciprofloxacin for 3 month and there was no infection of operative site.

DISCUSSION

Extracranial mycotic aneurysm of CCA is extremely rare. The incidence of mycotic aneurysm of CCA was 0.03% in all arterial aneurysm [2]. In all mycotic aneurysms, carotid artery accounted for 5% [3].

The most common cause of mycotic aneurysms is trauma (42%), but in 25%, the exact source of infection is unknown [1]. In this case, the patient did not have any history of trauma, but old age and uncontrolled DM might be risk factors of infection.

There are many kind of organisms that might be a source of infection. *Staphylococcus* is the most common cause of infection, and other organisms have been also reported including *Streptococcus*, *Klebsiella*, *Escherichia coli*, *Salmonella*, *Proteus mirabilis*, *Mycobacterium tuberculosis*, *Aspergillus fumigates*, *Pseudomonas*, and *Bacteroides fragilis* [4,5]. This patient was diagnosed with *S. aureus* infection by blood and wall of artery culture, he was administered oral antibiotic after discharge. However, exact infection origin was not confirmed.

The treatment of choice for mycotic pseudoaneurysm is surgical therapy. Several surgical therapies have been reported, such as ligation of vessel, reconstruction of vessel, and endovascular technique [1,3-6]. Recent study reported that ligation of blood vessels is limited if reconstruction is impossible [6]. Patch angioplasty, autologous vein graft could be used for reconstruction of CCA. The saphenous vein was used for reconstruction and the femoral vein is an

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alternative vein graft which may be more favorable due to its size [6,7]. Cryopreserved arterial allografts could also be used, but these are only available in specific vascular centers [1,6]. Antibiotic-soaked artificial grafts were reported in emergency cases [4]. In our case, preoperative diagnosis was a pseudoaneurysm or abscess, and thus we did not prepare vascular graft. However in operation, the wall of CCA was already ruptured which was immediately clamped by both ends and so we did not have enough time to harvest a vein graft. Furthermore, cryoperserved arterial allograft was not available at our institution and we performed interposition bypass using rifampin-soaked PTFE graft.

Mycotic aneurysm of CCA is very rare and lethal, requiring immediate surgical treatment. In our knowledge, this is the first surgically treated mycotic aneurysm of CCA in Korea. We report a rare case of mycotic aneurysm of right CCA that was treated by bypass interposition.

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