

# Post-irradiated Carotid Blowout Syndrome in patients with Nasopharyngeal Tumor : about 3 cases

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## Introduction

Rupture of internal carotid artery (Carotid blowout syndrome (CBS)) is a rare complication of irradiated nasopharyngeal tumor. We report three cases of nasopharyngeal tumors treated with radiotherapy complicated with bleeding of the internal carotid artery presenting as a massive epistaxis.

## Case report

### Case #1

A 51 years old man presented few episodes of epistaxis. A sphenopalatine artery ligation was first performed, but one month later the patient suffered again from a massive nose bleeding. An embolisation of the right internal carotid was then performed and achieved to stop the bleeding. Six month after, the neurological defect was limited at the left upper limb.



Patient medical's history is marked by the diagnosis of a right ethmoid esthesioneuroblastoma at age 18. This tumor was treated by surgery and radiotherapy. Twenty-five years after these treatments, the patient developed chronic sinusitis and skull base osteoradionecrosis. Over the last six years, he presented three episodes of meningitis related to sinus infection. Finally, he died from a septic shock due to the last meningitis.

### Case #2

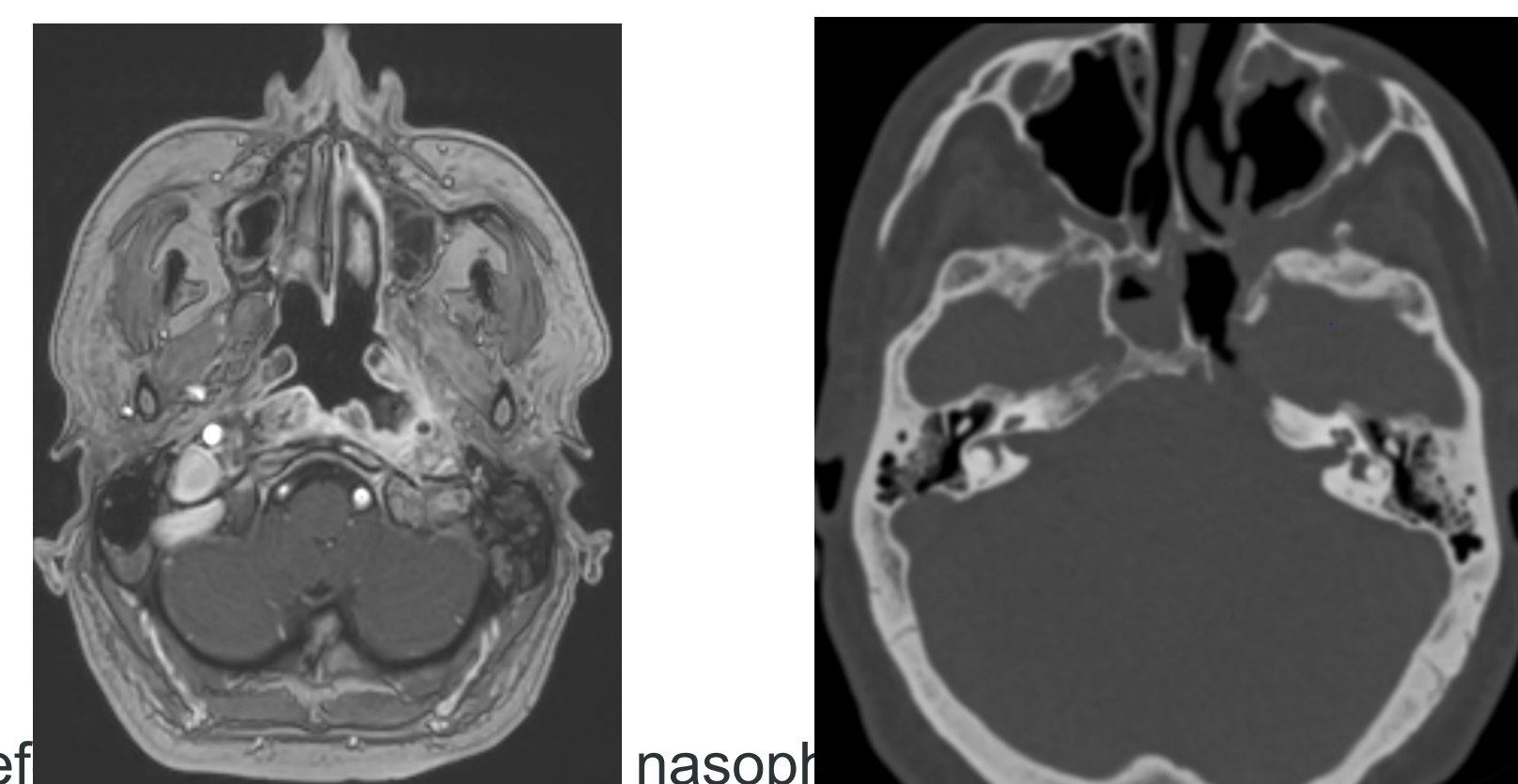
A 49 years old man was transferred to our hospital with severe repetitive epistaxis that had been occurring for hours. The patient was known to have a left nasopharyngeal carcinoma treated by radiotherapy and chemotherapy 2 years before. A second irradiation was needed to treat a basicranial recurrence.

Posterior nasal packing was not possible because of the patient's trimus. He was then transferred with only anterior nasal packing with a Meroceel in each nasal fossa. One hour after his arrival, the patient suffered from a massive nose bleeding which required the implementation of a vesical probe in both nasal cavities and realisation of an cricothyrotomy to maintain ventilation.

He presented a cardiac arrest due to hypovolemic shock. After fifteen minutes of cardiopulmonary resuscitation, the patient was stabilized and an angioCT was realized. A pseudoaneurysm with a necrosis of the internal carotid wall was shown as well as a severe tumoral stenosis of the internal carotid. In this situation, no embolisation or surgery were possible and the patient died in intensive care unit the day of his admission.

### Case #3

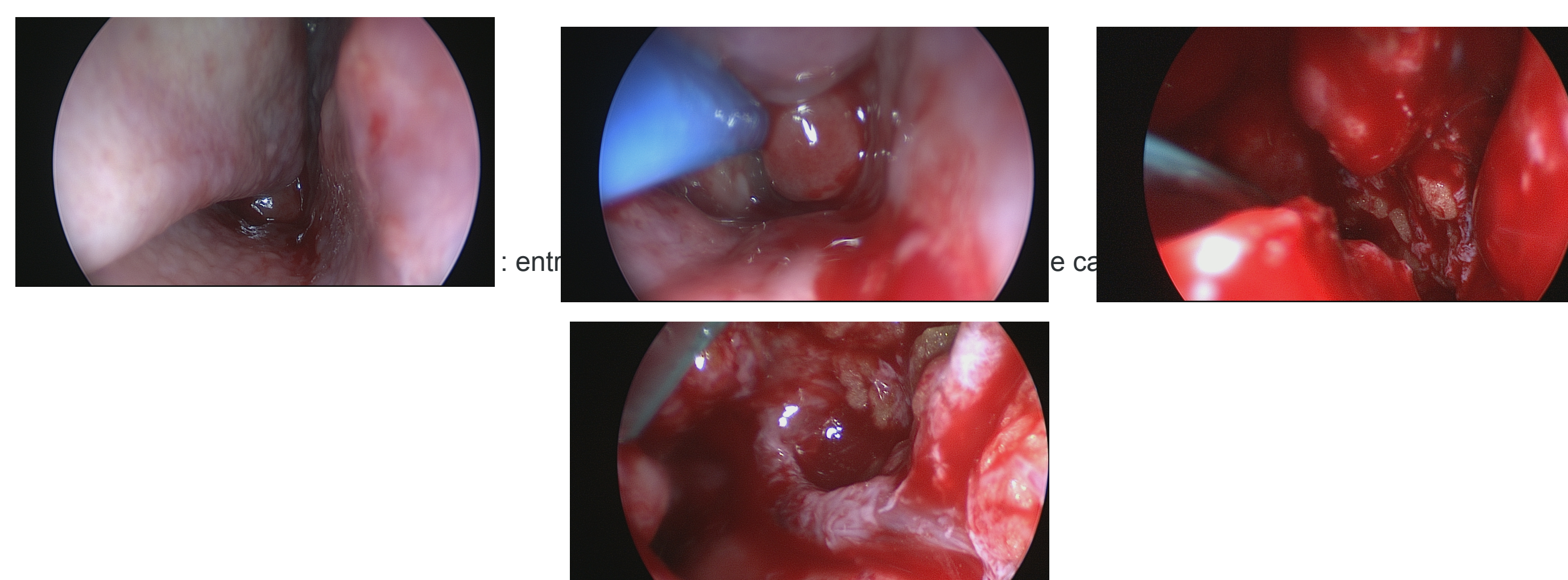
A 44 years old man presented one episode of massive epistaxis which stopped without any treatment or compression. A spontaneous occlusion of his internal carotid artery occurred without any neurological defect.



Twenty years before, the patient was diagnosed with a nasopharyngeal carcinoma. This tumor was treated by radiotherapy and chemotherapy. A few months later, a second irradiation was performed for carcinoma recurrence.

18 years after these treatments, osteoradionecrosis of the skull base and exposure of the dura were shown by CT-scan.

To prevent meningitis due to this defect, a free muscular-fat flap from the anterolateral thigh was micro-anastomosed in the cavum at the level of the osteoradionecrosis. This flap first occluded completely the nasopharynx, then was debulked 6 months later to recover nasal breathing.



## Conclusion

Carotid blowout syndrome secondary to radiation therapy is a rare but life-threatening condition. Re-irradiation and skull base osteoradionecrosis are strong predisposing factors. Carotid blowout syndrome results from the loss of soft tissue protecting the carotid artery system. It is classified into 3 clinical entities : threatened, impending and acute. Threatened CBS is defined as an exposed carotid artery resulting from prior radiotherapy or surgery; bleeding is inevitable without aggressive wound management. Impending CBS is defined as intermittent oronasal bleeding or bleeding through a radionecrotic or surgical wound, which can stop spontaneously or by pressure packing. The acute CBS is a profuse hemorrhage that usually cannot be stopped by pressure packing. Early and aggressive management of skull base radionecrosis is indicated to avoid CBS. Once CBS occurs, endovascular treatment is effective to stop the bleeding and is a life-saving intervention.

