Rhinology, 21, 299-302, 1983

Surgical management of nasopharyngeal angio-fibroma

Wu-Shan, Kwangchow, People's Republic of China

SUMMARY

Seventy cases of nasopharyngeal angio-fibroma are reported. Most of the patients were young adolescents between 13–24 years of age. 91% were males. The main symptoms were nose blockage and nasal bleeding, the latter was present in all the patients but the amount of blood varied from a few milliliters a time to a few hundreds of milliliters.

Although angio-fibroma is benign, it invades the surrounding structures, especially the sphenoidal sinus, maxillary sinus and the ethmoidal sinuses, by expansion or by erosion. In 1/7th of the cases the palate is pushed downwards or bulges.

Surgery may be the only methods to cure the disease. The main principle of surgery is complete removal of the tumour together with the periosteum to which it is attached. After thorough exposure, the extraction of the tumour should be as quick as possible, otherwise the bleeding will be profuse. As soon as the tumour has been completely removed, the hemorrhage stops spontaneously or only a minor bleeding remains. The majority of the blood supply is derived from the external carotid system, so ligation of the external carotid and injection of saline or 0.5% novocaine solution in the base of the tumour just before the extirpation of the tumour can reduce the loss of blood during the operation. However, usually a blood transfusion of 300–500 ml is necessary.

In the past twenty-five years we have treated 70 cases of nasopharyngeal angio-fibroma, but in the same period of time we have dealt with thousands of nasopharyngeal cancer. These two diseases are entirely different in nature, so the treatment is different too.

The nasopharyngeal fibroma has two special features: first, it is very vascular, with numerous blood vessels which can bleed frequently and profusely. Secondly, it attaches itself to the periosteum of base of the skull and although it is benign in structure, it invades the structures near-by, especially the sphenoidal sinus. And if not removed completely, it may recur.

Paper presented at the 9th Congress of the European Rhinologic Society and 3rd ISIAN, Stockholm (Sweden), September, 1982.

CLINICAL DATA

1. Age and sex. Usually the patients are young adolescents: 56 of these 70 cases concern adolescents between 13–24 years of age. In the present series the youngest patient is 7 years of age, whereas the oldest is 42 years old. There are only six females among these 70 cases; that means 91% is male.

2. Main symptoms. The symptoms are nose blockage and nasal bleeding. 53 cases consulted the doctor complaining of nose blockage and 17 patients complained of nose bleedings. When questioned, all of them had a history of recurrent nasal bleedings. The amount of loss of blood varied from a few ml to a few hundred ml a time. The other symptoms are: nasal discharge, from mucoid to purulent, caused by a disturbance of drainage; tinnitus and conductive hearing loss due to an obstruction of the Eustachian tube. The less common symptoms are deformity of the nose, swelling in the temporal region or maxillary region and one case of visual disturbance.

3. Main signs. All patients of this series showed a mass in the nasopharynx. These tumours had various sizes, from the size of a peanut to a huge mass that could push the palate downwards (11 cases showed downwards pushing). When the tumour was not so big, we could determine its base by posterior rhinoscopy: 16 at the choana, 5 on the roof of the nasopharynx.

Among these 70 cases, 30 showed a tumour in the nose that could easily be seen by anterior rhinoscopy. The colour of the tumour can be red, grey (with necrotic tissue) of whitish (covered by pseudo-membrane).

Deformity of the nose, bulging of the temporal region or maxillary region, or downward-pushing of the palate, all depended on the direction of expansion of the tumour.

The most important characteristics of this kind of tumour are that the mass is firm or hard when palpated and that there is a history of recurrent epistaxis, sometimes with large amount of loss of blood. The biopsy should be done after hospitalization, not in the out-patient-department, because the biopsy can induce a profuse bleeding.

SURGICAL MANAGEMENT

The main principle of surgery is complete removal of the tumour tissue together with the periosteum to which the tumour is attached. The exposure has to be adequate. Extirpation of the tumour should be carried out as quick as possible otherwise the bleeding will be profuse.

The exposure should be adequate, either lateral rhinotomy or transpalatal (Owen's) incision will do. In this series, the transpalatal incision is preferred (58/70), because it offers a wider view.

In order to reduce hemorrhage, an injection with saline or 0.5% novocaine is administered in the base of the tumour just before starting the extirpation and this

can reduce the extent of loss of blood. Controlled hypotensive anesthetic technique might help when the base of the tumour is wide and the tumour mass is big. We sometimes tried this technique but it was not applied as a routine practice. Since the nasopharynx receives blood supply from both external carotid arteries, ligation should be bilateral, except in those tumours which are limited to one side. 25 of these 70 cases were ligated bilaterally. 20% of the blood supply of the tumour can be derived from the internal carotid system, especially those with invasion of the sphenoidal and ethmoidal sinuses. In such a situation the bleeding would remain profuse, even if the external carotids were ligated. Injection of a sclerosing agent into the tumour several days before the operation may be a good method to reduce hemorrhage during operation, but this was not practiced in this present series.

The essential point of reducing the loss of blood during operation is quick extirpation of the tumour after it has been thoroughly exposed. When the tumour was removed completely, the hemorrhage would stop spontaneously or bleed in a small amount only. In the present series, the largest amount of loss of blood was 2500 ml, the smallest was 20 ml. Usually a 300–500 ml blood transfusion was needed.

Although nasopharyngeal fibroma is a benign tumour, it invades the surrounding structures either by pressure or by erosion:

- Invasion of sphenoidal sinus 23 cases;
- Invasion of maxillary sinus 7 cases;
- Invasion of the lateral wall of nasopharynx and into the infra-zygomatic fossa 2 cases;
- Invasion of the ethmoidal sinus (one with exposure of the dura mater, one with compression of the optic nerve) 3 cases.

Some of the tumours get into the maxillary sinus and may even destroy the anterior wall of the sinus and cause bulging of the face. Whenever the tumour gets into the sphenoidal sinus or ethmoidal sinuses the bleeding was more profuse during operation until that portion of the tumour inside the sinuses had been completely removed.

After studying the pathological sections, the tumour can be described as either angio-fibroma or fibro-angioma. Evidence of infection is rather common, 16 cases of the 70. We also found one case of ossification and one case of sarcomatous changes.

Up to now, surgical removal of the tumour is preferred by most authors. Perhaps this is the only way to cure it. But the surgery should be radical otherwise recurrence may occur. In the present series six recurrences were found, i.e. 8,6%. None of the patients of this series died after the operation.

The rate of recurrence is relatively low. The reason for this is probably first the

complete removal of the tumour together with the periosteum to which it is attached and second, hormone therapy. In most cases estrogen was used postoperatively for some time.

RÉSUMÉ

Ce rapport présente 70 cas d'angiofibromes nasopharyngiens.

La plupart des malades sont des adolescents, les âges varient de 13 à 24 ans, 91% en sont mâles. Les principaux symptomes sont un blocage du nez et des hémorragies nasales, le dernier symptome se présentant chez tous les malades, la quantité de sang variant cependant de quelques millilitres à quelques centaines de millilitres, à la fois.

Quoique bénigne, l'angiofibrome envahit, par expansion ou par érosion, les structures voisines, en particulier le sinus sphénoïdal, le sinus maxillaire et les sinus ethmoïdaux.

Dans un cas sur sept l'angiofibrome poussant vers le bas, a déformé le palais et l'a fait gonfler.

Dans cette affection, la chirurgie pourrait être la seule méthode indiquée. Le principe majeur de la chirurgie est d'enlever la tumeur en totalité avec le périoste auquel elle est attachée. Après exposition minutieuse, l'extirpation de la tumeur doit être effectuée le plus rapidement possible, sinon le saignement est abondant. Dès que la tumeur est enlevée en totalité, l'hémorragie s'arrête spontanément ou seul un léger saignement subsiste.

L'approvisionnement en sang vient en majeure partie du système carotide externe, de sorte que la ligature de la carotide externe et l'injection d'une solution saline ou d'une solution de novocaïne à 0,5% dans la base de la tumeur, tout juste avant son extirpation, pourront réduire la perte de sang durant l'opération. Cependant, habituellement une transfusion de 300 à 500 ml de sang est nécessaire.

REFERENCES

1. Gate, G. A., 1982: Current therapy in otolaryngology, head and neck surgery, pp. 298–302. Mosby Company.
2. Paparella, M. M. and Shumrick, D. A., 1973: Otolaryngology, Volume 3, pp. 56, 323, 343. W. B. Saunders Company.

Dr. Wu-Shan
ENT-Department
Kwantung Provincial People's Hospital
Kwangchow
People's Republic of China