The Cause and Evaluation of Unilateral Vocal Cord Paralysis

SUPAPORN SRIROMPOTONG, M.D.*,
PATCHAREEPORN SAE-SEOW, M.D.*,
SOMCHAI SRIROMPOTONG, M.D.*

Abstract

Background : Unilateral vocal cord paralysis (UVCP) is a common finding in the practice of otolaryngology. It usually presents with hoarseness, although more severe symptoms may include aspiration, choking or pneumonia.

Objective : To evaluate the etiology, outcomes and sensitivity of diagnostic tests.

Patients : Patients with UVCP.

Setting : Department of Otolaryngology, Srinagarind Hospital, Faculty of Medicine, Khon Kaen University.

Design : Descriptive study.

Result : Ninety patients with UVCP were encountered between 1994 and 1998. The left vocal cord was involved in 73 per cent of cases and the right vocal cord in 27 per cent. The causes were neoplasm (29%), postoperative (24%), inflammation (21%), trauma from endotracheal intubation and external laryngeal trauma (8%), central (5%) and idiopathic causes (13%). Among the 13 post-thyroid surgical cases, three had a complete recovery, seven had compensation and three had no recovery and no compensation.

Two trauma cases were caused by intubation, both had a complete recovery. Follow-up of these were over periods of one and three months, respectively.

Conclusion : Thirty nine per cent of chest X-rays were positive. This was the only useful diagnostic test.

Key word : Unilateral Vocal Cord Paralysis, Cause, Evaluation

**SRIROMPOTONG S,
SAE-SEOW P, SRIROMPOTONG S
J Med Assoc Thai 2001; 84: 855-858**

Unilateral vocal cord paralysis (UVCP) is a common problem encountered by otolaryngologists. Patients usually present with a hoarse voice although more severe symptoms may include aspiration, choking, or pneumonia. Because of the circuitous course of the vagus nerve, especially the recurrent laryngeal

* Department of Otolaryngology, Faculty of Medicine, Khon Kaen University, Khon Kaen 40002, Thailand.

(RLN) branch, there are many anatomical areas of vulnerability and many diseases that can cause vocal cord paralysis, either temporarily or permanently.

The objective of our evaluation was the determination of the underlying cause and restoration of vocal cord function of patients with UVCP. We reviewed the hospital records of 90 patients to evaluate the common etiologies, methods of diagnosis and outcomes.

MATERIAL AND METHOD

We performed a retrospective chart review and discovered 90 patients with UVCP who were seen by an otolaryngologist at Srinagarind Hospital between January 1994 and December 1998. The data collected included age, sex, symptoms, method of diagnosis, side and position of paralysis, investigations, cause and outcome.

We categorized the outcomes as:

1. Complete recovery.
2. Compensation: patients who had not recovered but were sufficiently symptom-free to function.
3. No recovery and no compensation.

RESULTS

There were 90 patients with UVCP, including 47 men (52%) and 43 women (48%). The age at onset ranged from 6 to 86 years, with a mean of 47 years. The left cord was affected in 73 per cent of cases and the right cord in 27 per cent. Diagnoses were made by indirect laryngoscope in 99 per cent of cases with the exception of one case, which was diagnosed by using flexible laryngoscopy. Hoarseness was the predominant symptom in 62 per cent of cases, followed by hoarseness and aspiration (32%), hoarseness and dysphagia (4%), hoarseness, aspiration and dysphagia (1%) and globus symptom (1%).

Physical examination yielded these positive findings: neck mass (19% of cases), thyroid mass (19%), nasopharyngeal mass (2%) and cranial nerve involvement (6%). The paralyzed cord was most often (81%) in the paramedian position, but 12 per cent were in the midline position and 7 per cent were in the cadaveric position. We performed a chest X-ray on 66 patients, which revealed positive findings in 39 per cent of the cases.

The etiology of UVCP is shown in Fig. 1. Neoplasm was the most common cause (29%) of UVCP, followed by surgery (24%), inflammation (21%), idiopathic cause (13%) and trauma (8%). Among the 7 trauma cases, two were induced by intubation and six were caused by external laryngeal trauma. There were 26 cases caused by neoplasms, nine of these were in the neck and six were in the lung, five were metastatic, mediastinal or supraclavicular nodes, four were in the nasopharynx, one was in the esophagus and one was in the cerebropontine angle.

Surgical causes included interventions to the thyroid in 13 cases, the thorax in six, the neck in two and the cerebropontine angle in one. Post-thyroid surgery caused 13 cases of UVCP. Among these, three cases had a complete recovery, seven had compensation and three had no recovery and no compensation (Fig. 2).

Two patients suffered trauma because of intubation, both had a complete recovery. Follow-up of these two cases were over periods of one month and three months.

DISCUSSION

Vocal cord paralysis is a multifaceted problem that affects patients of all ages. Peripheral lesions injuring the vagus nerve or its branches are responsible for 90 per cent of all cases of vocal cord paralysis. The etiologies include neoplasm,

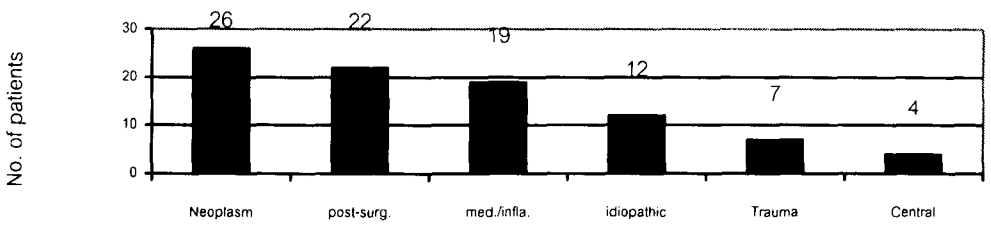

Fig. 1. Etiology of 90 cases with UVCP.

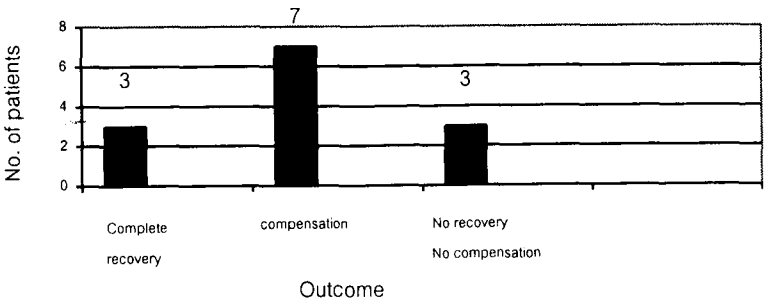

Fig. 2. Outcome of 13 patients with UVCP from thyroid surgery.

surgical injury, inflammation, trauma and an idiopathic cause. Thyroid surgery once accounted for 20 per cent to 30 per cent of reported unilateral vocal cord paralysis[1-4]. Recent reports have shown that the incidence of UVCP caused by thyroidectomy has decreased. In 1990, Ojawa et al[5] reported a 9 per cent incidence, whereas, in 1992, Terris et al [6] reported an 8 per cent incidence and in 1998 Ramadan et al[7] reported only a 4 per cent incidence. In our review, 14 per cent were caused by thyroid surgery, which is higher than that reported in recent years.

The most frequent (29%) cause of UVCP in our study was neoplasm, with surgical injury being second (24%). Neck neoplasm was the most common tumor (10%), followed by lung neoplasm (7%).

In evaluating the cause of UVCP, underlying diseases or malignant conditions should be investigated. A chest X-ray is a useful screening tool [7]. We performed a chest X-ray on 66 patients, which revealed positive findings in 39 per cent of the cases. The erythrocyte sedimentation rate, VDRL, blood glucose, blood count, urinalysis, blood chemistry profile and thyroid function studies provided complementary information[7]. In our review all of these tests were negative.

The outcome of paralysis depends on the cause. Paralysis caused by neoplasms have a poor prognosis. Patients with trauma due to intubation usually recover completely[7]. In our review, the two trauma cases due to intubation did indeed experience a complete recovery.

SUMMARY

This was a retrospective study. There are many limitations that preclude a definitive conclusion, but the study can serve as a guide and baseline for future prospective studies at Srinagarind Hospital.

ACKNOWLEDGEMENT

The authors wish to thank Professor Guy Edwards and Mr. Bryan Hamman for their assistance in improving the English language presentation of the manuscript.

(Received for publication on February 10, 2000)

REFERENCES

1. Parnell FW, Brandenburg JH. Vocal cord paralysis: a review of 100 cases. Laryngoscope 1970; 80: 1036-45.
2. Maisel RH, Ogura JH. Evaluation and treatment of vocal cord paralysis. Laryngoscope 1974; 84: 302-16.
3. Willatt DJ, Stell PM. The prognosis and management of idiopathic vocal cord paralysis. Clin Otolaryngol 1989; 14: 247-50.
4. Fitzpatrick PC, Miller RH. Vocal cord paralysis. J La State Med Soc 1998; 150: 340-3.
5. Ojawa Y, Takashi M, Hiroshi M. Recurrent laryngeal nerve paralysis. In: Sacristan T, Alvarez-Vicent JJ, Bartual J, et al., eds. Otorhinolaryngol Head Neck Surg. Amsterdam: Kugler & Ghedini Publications, 1990: 2021-4.
6. Terris DJ, Arnstein DP, Nguyen HH. Contemporary evaluation of unilateral vocal cord paralysis. Otolaryngol Head Neck Surg 1992; 107: 84-90.
7. Ramadan HH, Wax MK, Avery S. Outcome and changing cause of unilateral vocal cord paralysis. Otolaryngol Head Neck Surg 1998; 118: 199-22.

สาเหตุและการประเมินโรคสายเสียงอัมพาตข้างเดียว

สุภาภรณ์ ศรีร่มโพธิ์ทอง, พ.บ., พัชรีพร แซ่เซียว, พ.บ.*, สมชาย ศรีร่มโพธิ์ทอง, พ.บ.**

บทนำ : โรคสายเสียงอัมพาตข้างเดียว เป็นโรคที่พบได้บ่อยในผู้ป่วยที่มาพบแพทย์หู คอ จมูก ซึ่งมักจะมีอาการเสียงแหบ หรืออาจมีอาการรุนแรง เช่น การสำลัก และทำให้เกิดปอดบวมตามมาได้

วัตถุประสงค์ : เพื่อประเมินสาเหตุที่พบบ่อย, วิธีการวินิจฉัยและการพยากรณ์ของโรคสายเสียงอัมพาตข้างเดียว

สถานที่ศึกษา : ภาควิชาโสต ศอ นาสิก และลาริงซ์วิทยา โรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่น

วิธีการศึกษา : ศึกษาเชิงพรรณนา

ผลการศึกษา : ผู้ป่วยโรคสายเสียงอัมพาตข้างเดียว จำนวน 90 ราย ศึกษาระหว่างปี 2537–2541 พบอัมพาตของสายเสียงข้างซ้าย 73% และข้างขวา 27% สาเหตุเกิดจากเนื้องอก (neoplasm) 29%, ผลจากการผ่าตัด (postoperative) 24%, การอักเสบ (inflammation) 21%, การบาดเจ็บ (trauma) 8%, โรคของระบบประสาทส่วนกลาง (central) 5%, และไม่รู้สาเหตุ (idiopathic) 13% ในผู้ป่วย 13 ราย ที่เป็นผลจากการผ่าตัดธัยรอยด์ พบว่ามีการพยากรณ์ของโรคดังนี้คือ หายขาด (complete recovery) 3 ราย ปรับตัวได้ (compensation) 7 ราย และไม่หาย (no recovery and no compensation) 3 ราย มีผู้ป่วย 2 รายที่สาเหตุเกิดจากการบาดเจ็บจากการใส่ท่อช่วยหายใจ และพบว่าหายขาด (complete recovery) ทั้งสองราย

สรุป : การตรวจทางห้องปฏิบัติการที่มีประโยชน์ในการวินิจฉัยโรคมากที่สุด คือการตรวจภาพรังสีของปอด ซึ่งตรวจพบสาเหตุถึง 39%

คำสำคัญ : สายเสียงอัมพาตข้างเดียว, สาเหตุ, การประเมิน

สุภาภรณ์ ศรีร่มโพธิ์ทอง, พัชรีพร แซ่เซียว, สมชาย ศรีร่มโพธิ์ทอง
จดหมายเหตุทางแพทย์ ฯ 2544; 84: 855–858

* ภาควิชาโสต ศอ นาสิก และลาริงซ์วิทยา, คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น, ขอนแก่น 40002