다. Spiro는 Memorial의 35년간의 자료로 그간의 통념과 다른 결과를 발표하였다. 일반적으로 주타액선은 크기가 작은 타액선에서 생긴 암종일수록 예후가 좋지 않다고 알려져 왔으나 악하선의 결과가 결코 이하선에 비하여 낮지 않다고 주장하였으며 minor salivary gland의 암종이 예후가 불량하다고 알려져 있으나 주타액선의 암종과 결과에 차이가 없다고 보고하였다 (major=474, minor=375). 더욱이 타액선암종의 grading의 분석에서 mucoepidermoid grade 1과 acinic cell carcinoma가 가장 양호하고 squamous 혹은 anaplastic carcinoma가 가장 불량한 것을 제외하고는 grade에 따라 큰 차이가 없음을 보고하였다.

1991년 Memorial의 178명(1960~1985)의 이하선 암환자를 대상으로한 study에서는 survival에는 tumor grade, tumor size, positive node, facial nerve invasion이 factor라 하였고 loco-regional recurrence에는 positive node 및 tumor size가 가장 영향을 미친다 하였다.

Strategy

Risk factor로 tumor size, grade, positive node, facial nerve invasion, extraparotid extension, perilymphatic invasion은 여러 문헌에서 거의 공통적으로 보고되고 있다. 이하선의 치료에 있어서 3cm이하의 초기암종이면 종양의 grade에 상관없이 양성종양의 절제와 마찬가지 개념으로 치료하여도 우수한 성적을 얻을 수 있다고 하는 보고가 많다. 즉 aggressive 한 조직소견을 보여도 종양의 크기가 작을 때 발견하고 치료하면 결과가 양호하다는 것이다. 최근의 이러한 surgical conservatism은 adjuvant로서 술후방사선치료에 힘입은 바 크다고 하겠다.

References

1) Frankenthaler RA : *Prognostic variables in parotid gland cancer. Arch Otolaryngol Head Neck Surg 117 : 1251, 1991*
2) Califano L : *Indication for neck dissection in carcinoma of the parotid gland. Int Surg 78 : 347, 1993*
3) Spiro RH : *Carcinoma of major salivary glands, Recent trends. Arch Otolaryngol Head Neck Surg 115 : 316, 1989*
4) Frankenthaler RA : *Predicting occult lymph node metastasis in parotid cancer. Arch Otolaryngol Head Neck Surg 119 : 517, 1993*
5) Armstrong JG : *Malignant tumor of major salivary gland origin. Arch Otolaryngol Head Neck Surg 116 : 290, 1990*
6) Donald PJ : *Management of parotid malignancy. In Excision and reconstruction in head and neck cancer (ed Soutar DS and Tiwari R) 1st Ed, Churchil Livingstone, Edinburgh London, pp351, 1994*
7) Spiro RH : *Prognostic variables of salivary gland cancer. In Proceeding of the third international conference on head and neck cancer, San Francisco, 26-30 July 1992, Excerta Medica, pp619, 1993*
8) Spiro RH : *Salivary gland cancer : stage and grade as it relates to prognosis. In Proceeding of the fourth international conference on head and neck cancer, July 28-Aug 1, 1996. pp740*
9) Olsen KD : *Tumors and surgery of the parapharyngeal space. Laryngoscope 104 suppl 63, 1994*

4

Facial Nerve Management

박 승 하
고려대학교 의과대학 성형외과학교실

ANATOMY

1. Central nerve

- The voluntary motor portion of the facial nerve begins in the lower segment of the precentral gyrus
- Majority of nerve fibers cross in the caudal pontine region to reach the facial nerve nucleus in the contrallateral pons.
- Those fibers destined to innervate the upper facial muscles also ramify to the ipsilateral facial nerve nucleus, allowing bilateral cortical innervation of the upper facial muscles.

- sparing the muscles that raise and wrinkle the forehead and close the eye

→ cortical or corticobulbar tract lesions.

2. Intratemporal

1) The first branch of the facial nerve-the greater petrosal nerve

- parasympathetic secretory fibers to the nose, mouth, and lacrimal gland
- sensory taste fibers from the palate

2) The nerve to the stapedius muscle.

3) chorda tympani nerve

- parasympathetic secretory fibers to the submandibular and sublingual glands(Fig. 1)

3. Extraltemporal 5 branches

- 18 muscles of facial expression

1) temporal
2) zygomatic
3) buccal
4) marginal mandibular
5) cervical

ETIOLOGY

1. Idiopathic(Bell's Palsy)

- Today Bell's palsy is a term reserved only for the idiopathic form of facial paralysis

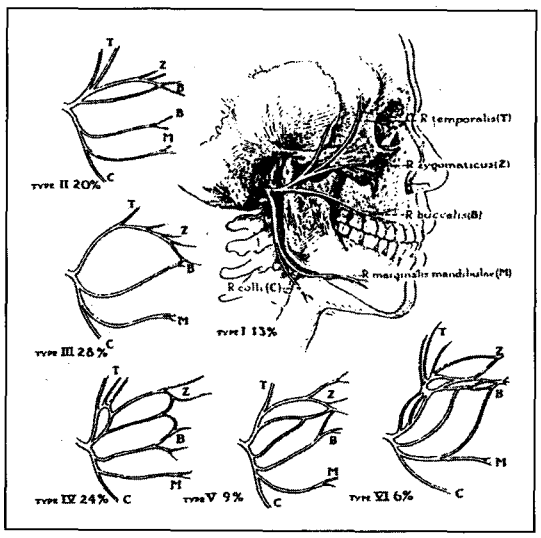


Fig. 1. Various patterns of branching of the facial nerve.

- Bell's palsy must be a diagnosis of exclusion that should be made only after a thorough evaluation of the patient.

- combination of a viral-vascular insult to the facial nerve → edema of the nerve within the fallopian canal → disrupts the neural microcirculation

→ impairs conduction of electrical impulses
→ nerve degeneration recovery is often incomplete, unsatisfactory

- concomitant involvement of other cranial nerves → suggesting that Bell's palsy is a cranial polyneuropathy

- It is still not universally accepted that Bell's palsy is a virus induced disorder.

2. Non-Idiopathic Facial Paralysis

Findings That Rule Out Bell's Palsy

Symptom/Finding	Diagnosis	Frequency of etiology other than bell's
Simultaneous bilateral facial palsy	Guillain-Barre, sarcoidosis, pseudobullbar palsy, syphilis, leukemia, trauma, Wegener's granulomatosis	100%
Unilateral facial weakness slowly preogressing beyond three weeks	Facial nerve neuroma, metastatic carcinoma, adenoid cystic carcinoma	100%
Slowly progressive unilateral facial weakness associated with facial hyperkinesis	Cholesteatoma, facial nerve neuroma	100%
No return of facial nerve function within six months after abrupt onset of palsy	Facial nerve neuroma, adenoid cystic carcinoma, basal cell carcinoma	100%
Ipsilateral lateral rectus palsy		100%
Recurrent unilateral facial palsy	Facial nerve neuroma, adenoid cystic carcinoma, meningioma	30%

3. **Trauma**

1) temporal bone fracture

2) penetrating facial wound

4. **Tumor**

- sudden or slowly progressive

- suspected if

; there is unilateral facial weakness slowly increasing fore more than 3 weeks

; abrupt

; no return of function within 6 months,

; the facial weakness is associated with hyperkinesis(twitching)

- origin

; facial nerve, parotid gland, a distant site(CNS) origin.

- SX ; hearing loss, parotid masses.

; tumors of the parotid gland with associated facial paralysis are diagnostic of a malignancy.

- 종류 ; CNS neoplasms, congenital cholesteatomas hemangiomas. Intratemporal or intracranial cholesteatomas.

Von Recklinghausen's disease

5 **Viral Infection**

; varicella-zoster, herpes simplex, Epstein-Barr virus.

6. **Bilateral**

; in 0.3% to 2% of patients with facial paralysis.

; possible causes

; 36% were due to Lyme disease, tick-borne illness caused by spirochete Borrelia burgdorferi.

; AIDS is also increasingly common cause of bilateral facial paralysis

7. **Recurrent**

*Melkersson-Rosenthal syndrome

sx. - recurrent facial nerve paralysis,

- noninflammatory facial edema

- congenital fissuring of the tongue

etiology

- is unknown typically

Tx - selflimiting, conservative.

*10% of patients with Bell's palsy

*tumors.

DIAGNOSTIC STUDIES

- 80% of patients with facial paralysis → Bell's palsy

- 85% begin to recover nerve function spontaneously within 3 weeks.

- Clearly, a 3-week period of observation is indicated before undertaking extensive diagnostic studies Because expensive, time-consuming limited information.

- Tests of facial nerve function are of three kinds :

1. **Etiologic tests**

1) serologic studies for syphilis diabetes mellitus

2) radiographic evaluation :

a) mastoid films - destructive lesion, opacification of the mastoid air cells, and, occasionally, widening of the internal auditory canal.

b) CT scnas - intracranial, intratemporal, or extratemporal tumors, fine bony detail of the facial nerve canal within the temporal bone.

c) MRI scanning with gadolinium(gadolinium diethlenetriamine pentaacetic acid(Gd-DTPA))

- to differentiate between pathologic and nonpathologic conitions of the facial nerve.

- also valuation in identifying certain primary intratemporal facial nerve lesions posterior fossa or internal auditory canal tumors.

2. **prognostic tests**

1) The nerve excitability test(NET) : subjective and does not reflect denervation at the moment it is occurring

2) The maximal stimulation test(MST) : stimulus is increase until the patient experiences discomfort : at which point the main trunk of the nerve and each of the distal branches is sequentially tested.

- subjective and limited by 30% false-positive and 10% false-negative results.

3) Electroneuronography(ENOG)

- method

; A current sufficient to evoke a maximal response in the facial muscles is delivered percutaneously to the stylomastoid foramen region.

; With the averaging computer, the amplitude of evoked compound muscle action potentials(CMAP) is measured from bipolar surface electrodes placed over the skin of the nasolabial fold.

- Fisch determined that in most cases the acute pathological process was completed by the 10th day.

This was the time interval following which no further decline in CMAP was observed.

- With a 95% decrease in the CMAP compared with the control side, 50% of patients had unsatisfactory return of facial function following recovery/regeneration(The current criterion for surgery based on electroneuronographic findings : arbitrarily established as a 90% decrease in amplitude of the compound muscle action potential within 2 weeks of the onset of paralysis. 90% cut-off is used instead of 95% to try to increase the chance of satisfactory return above the 50% level)

- advantages : is objective

; Currently, elctroneuronography is the most accurate and reproducible test available to determine the prognosis for return of facial nerve function.

- disadvantage ; this is an expensive and time-consuming test that must be performed daily during the first 10 days postparalysis.

4) electormyography(EMG)

: does not become positive until 14 to 21 days from onset of paralysis if no recovery is clinically apparent.

; serial EMGs by the same examiner may demonstrate early renervation of the paralyzed muscles and reassure the patient about future clinical improvement.

; If the EMG is unchanged after several months of paralysis, one should consider searching for a neoplasm or other mass lesion.

5) None of the non-electrical tests in prognosticating recovery from facial paralysis.

3. Topographic tests

; indicated when a tumor is suspected and directed radiographic studies of a specific segment of the nerve are needed, or preoperatively to determine whether the lesion is distal or proximal to the geniculate ganglion.

1) Schirmer test

2) stapedial reflex

3) radiologic studies(CT and MRI)

SURGICAL TREATMENT IN FACIAL PARALYSIS

: Surgical options vary according to the cause and duration of the paralysis, age of the patient, presence of a fuctional ipsilateral facial nerve stump (extratemporal, intratemproal, or intracranial), and the patient's own needs and desires).

1. Analyzing the Problem

- The surgeon must first determine the area of greatest concern to the patient, whether functional or esthetic, then determine realistically what can be reconstructed, and finally decide which muscle action (s) to try to reproduce and by what means(Fig. 10).

- Patient satisfaction is possible only when thorough preoperative counseling has clearly defined the goals, expectations, and risks of surgery and the probability of further operations for staged reconstruction or revision.

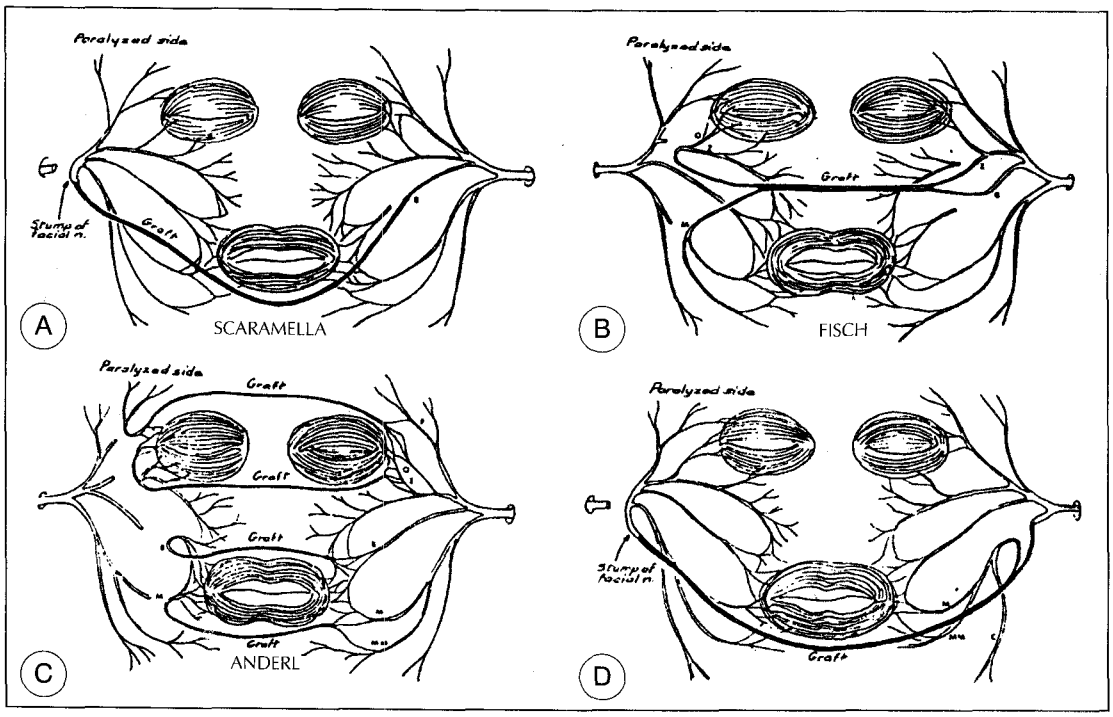
2. Viable Ipsilateral Facial Muscles-Reinnervation Considered Possible

- The facial muscles do not completely degenerate for several years, and are capable of being reinnervated for many months after the denervating event. Gagnon suggested that reinnervation of paralyzed facial muscles may be considered up to 3 years after the onset of paralysis.

1) Primary Nerve Repair

; Intratemporal facial nerve defects up to 17mm in length can be repaired directly by extensive mastoid and extratemporal rerouting of the facial nerve.

; Synkinesis from irregular axonal growth is expected, but the results are usually better than with other techniques of peripheral nerve repair.



Techniques of cross-face nerve grafting

2) Ipsilateral Nerve Graft

a. The success of a nerve graft depends on

(1) the relative number of axons remaining in a nerve

(2) the potential for regeneration of axons through the graft

(3) the status of the facial muscles.

b. the rate of axonal regrowth-1mm/day after the suture line has been crossed.

The most common sources-sural nerve, great auricular nerve.

c. the overall results obtained with facial-facial coaptation(direct end-to-end suture or interposition nerve graft) were superior to those of hypoglossal-facial transfer in terms of facial expression, tone, and voluntary movement.

3) Cross-Face Nerve Graft

- indicated when the proximal ipsilateral facial nerve stump is unavailable for grafting, distal stump is present, facial muscles are felt to be viable and capable of reinnervation.

- Anderl first sutured the graft on the non-paralyzed side and then waited 4 to 8 months before completing the graft on the paralyzed side, in the belief that this sequence would result in less fibrosis than if both sides were done simulataneously(as suggested by Smith).

- The sooner after onset of paralysis the first stage is performed, the more receptive the muscles will be to reinnervation and the better the ultimate functional return.

4) Cranial Nerve Transfer-Hypoglossal-Facial N (XI-VII).

a. The first surgical nerve transfer in 1879 - spinal accessory poe et al.(1989)

; reported a technique of C.N. XI to VII transfer without shoulder paralysis

b. In 1901, Korte first hypoglossalfacial nerve transfer : certain sequelae

- paralysis and atrophy of the ipsilateral tongue
- involuntary grimacing(synkinesis) with normal tongue movement(talking, chewing, swallowing) and

• no spontaneous facial expression

c. As orbicularis oris m. function recovers following hypoglossal-facial nerve transfer, swallowing appears tobe less of a problem.

If surgery for a posteior fossa tumor or trauma has resulted in paralysis of C.N. Ⅸ and Ⅹ, adding hypoglossal nerve dysfunction to the impairment can significantly affect the patient's overall ability to swallow

d. synkinesis is unavoidable if the facial muscles are reinnervated.

Synkinesis is usually most severe in the eyelids,

With training, however, somepatients can be taugh to move separate groups of facial muscles independently. As a rule, the better the recovery, the worse the synkinesis

e. speech articulation problems

; Many patients complain of difficulty with speech, especially when making "b", "p", and "l" sounds.

; In an analysis of 61 patients Pensak and colleagues(1986) more than half began moving the buccal region first. Only 39% felt they had achieved "symmetry and 'normal' facial tone at rest, with a minimum of mass action or synkinesis upon motion"

Ten percent felt their results were poor, as indicated by significant mass movement, distorting synkinesis, or no motion at all. worse still, 21% of patients had subsequent ophthalmologic problems characterized by dryness, irritation, pain, and visual disturbances.

5) Hypoglossal-Facial-Sural Interpositional Nerve Graft

- In 1981m Miehlke and Stennert : presented a number of options for facial reanimation with single and combination surgical procedures

- the authors suggests the use of a nerve graft from the hypoglossal nerve to the lower division of the facial nerve without actual disruption of the hypoglossal nerve.

3. Nonviable Ipsilateral Facial Muscles-No Possibility of Reinnervation

1) Cross-Face Nerve Graft and Delayed Free Muscle Flap

a. In 1971, Thompson successful muscle graft into a previously denervated area.

decreased energy consumption with denervation, enabling the muscle to survive transpalntation.

b. In 1970, Tamai and coworkers : function as well as survival of transplanted muscles if blood perfusion and innervation were immediately restored.

이용 muscles ; The gracilis, extensor digitorum brevis, and protions of the latissimus dorsi, pectoralis minor, seratus anteior muscles have all been microsurgically transplanted inattempts at facial reanimation.

c. In 1976, harii and colleagues "nearly complete" reanimation of the paralyzed face using corss-face nerve grafts and free microsurgical muscle transfers. Harii notes marked decrease in axonal regeneration of the graft(15% to 30% less than expected), but reports good function when cross-face nerve grafts are combined with neurovascular free muscle transfers.

d. In 1980, O'Brien and co-workers 51% good to excellent results in 47 patients who were available for follow-up.

e. Sassoon et al.

; showed that continuing innervation and increased muscle activity can occur for more than 4 years postoperatively.

f. Sanger and associates modified a technique of histochemical staining of nerve endings to permit intraoperative identification of myelinated motor fibers. The results of cholinesterase staining are available within 2 hours, enabling the surgeon to select the fascicle(s) with the largest concentration of viable axons.

2) Regional Muscle Transposition

In choosing an appropriate regional muscle for transfer, one must first define the principal vector of the patient's contralateral smile.

: superolateral-temporalis

: buccinator-risorius complex-massester

a. Temporalis

- The portion of the muscle anterior to the temporal hairline should not be used.

- Recommendations to improve the overall esthet-

ic result after facial muscle transpositions

• placing the incision in thenasolabial fold to enhance symmetry

• attaching the fascial bands to the modiolus and to multiple superficial and deep points along the orbicularis oris

• attaching a strip of muscle or fascia to the alar base

• placing the transposed muscle in a deep tissue plane so that the dermis does not attach to the muscle and cause unnatural folds and wrinkles when the muscle is activated by clenching of the teeth.

- Although photographs may show exceptional perioral symmetry, unless the patient is consciously contracting the transposed muscle in conjunction with smiling to the proper degree on the nonparalyzed side, symmetry is unlikely.

- Careful assessment of the results of temporalis muscle transposition confirms that the procedure is often little more than static support and a time-consuming, imperfect solution to the problem of facial paralysis.

STATIC FACIAL RECONSTURCTION

1. Indication

- in elderly persons who have poor prognoses
- in patients with massive facial defects
- after failed reanimation surgery
- in some cases of atrophy of the facial muscles
- those who are primarily concerned about their paralyzed eyelids, obstructed airway, poor speech and drooling

2. the goals

: to protect the cornea, restore facial symmetry at rest, correct the functional disability

Anderson describe a sequence of static procedures aimed at each of the facial areas :

1) brow lift eyebrow ptosis

2) modified Kuhnt-Szymanowski lower eyelid shortening and suspension

3) lateral and superior repositioning of the nasal alar base with a maxillary periosteal flap

4) shortening and thickening of the paralyzed upper and lower lips with preservation of the oral commissure

5) recreation of the facial-labial fold with maxillary periosteal flaps or deeply buried fascia lata grafts

MANAGEMENT OF SPECIFIC EYE PROBLEMS

*exposure of the cornea→corneal erosions→to severe corneal infection→even perforation neuroparalytic keratitis due to loss of sensation from an imparied trigeminal nerve and paralytic ectropion may compound the problem

1) During normal blink, the upper eyelid descends and moves nasally while the lower lid simultaneously moves 2 to 5mm in a horizontal, nasal direction→ movement of the lower eyelid assists in creating a vacuum in the lacrimal drainage system that is partially responsible for the pumping mechanism and for spreading the tears across the eye. Although most of the attention in the treatment of facial paralysis is directed at the upper eyelid, the lower eyelid can be equally important in preventing epiphora and associated keratoconjunctivitis.

2) conservative measure :

artificial tears during the day

ointment while asleep

taping to simulate a lateral tarsorrhaphy

3) Various procedures :

a. lateral and, less frequently, medial tarsorrhaphy can be performed to narrow the palpebral fissure, with or without horizontal shortening of thelower lid.

b. upper-lid loading bands(Arion's) permanent eyelid magnets

c. partial temporalis muscle transposition palpebral springs

FACIAL DYSKINESIAS

; characterized by unilateral or bilateral, involuntary, uncontrollable contractions of the facial muscles.

The spasms often persist during sleep and even with the patient under general anesthesia.

A. Hemifacial apasm

B. Essential Blepharospasm and Meige Syndrome

C. Facial Myokymia

D. Selective Neurolysis

E. Botulinum A Toxin

Some general principles for resecting lesions affecting the facial nerve

1. General Principles

1) Facial nerve integrity should be preserved in the removal of benign neoplasms, especially if facial nerve function was normal preoperatively. Even when facial paralysis was present before surgery, if the facial nerve is left intact some function may be recovered spontaneously

2) malignant lesions involving the facial nerve, on the contrary, usually should be resected with a wide margin of normal tissue together with normal facial nerve tissue.

3) The most desirable reanimantion procedure is grafting the facial nerve to restore anatomical integrity.

2. Exceptions to General Principles

1) Sacrificing the Facial nerve with Resection of a Benign Tumor

a. when a benign tumor is resected include cases in which total facial paralysis has been present for one year or longer preoperatively,

b. when the tumor threatens the integrity of other structures or life, as with tumors located in the posterior fossa, and when the tumor cannot be separated from the facial nerve and allowing the tumor to remain in place will jeopardize the patient's life (glomus tumor, cholesteatomas, and recurrent pleomorphic adenomas)

(1) Glomus Tumor

have tendency to invade surrounding structures and even the facial nerve itself, in managing these growths it may be necessary to resect part of the nerve with the tumor

(2) Cholesteatoma

Becuase the ingrowth of epithelium may threaten hearing, balance, life itself when located in the middle or posterior fossa, cholesteatoma should be removed completely if possible, even if it is necessary to sacrifice the facial nerve to do so.

(3) Recurrent Pleomorphic Adenoma

- If the tumor is adherent to the facial nerve, the involved segment of the facial nerve should be resected and the nerve repaired by palcement of a graft.

- intentional incomplete removal of a recurrent pleomorphic adenoma may result in widespread seeding and greater difficulty in eradicating the tumor at a subsequent time.

- The patient should be reassured that every effort will be made to remove the tumor and save the nerve. but that if this is not possible the nerve will be resected with the tumor. In that event the nerve will be repaired, and there is a 90 percent chance that recovery of a useful degree of facial function will begin by eight months after repair

2) Sparing the Facial Nerve when Malignant Tumors are Resected

a. Acinic cell tumors and low-grade mucoepidermoid carcinomas may be treated like benign lesions by excising the tumor and sparing the nerve.

b. There is a sizeable margin of normal tissue between the tumor and the facial nerve.

c. the deep portion of the parotid gland is uninvolved

d. when such tumors present peripherally, it may be possible to resect only a portion of the facial nerve and thus preserve a significant degree of facial function.

e. More aggressive malignant tumors such as small cell carcinomas and undifferentiated epidermoid carcinomas involving the parotid gland : may have metastasized to distant locations at the time of surgery, both types of lesions may respond to a combination of radiation and chemotherapy.

f. adenoid cystic carcinomas : in general because

the behavior of this type of tumor is unpredictable and it responds so well to high-dose irradiation, removing the tumor en bloc and sacrificing facial nerve function may not be justifiable

g. Lymphomas and leukemias also respond well to irradiation and chemotherapy, and facial nerve deficits noted prior to treatment often will resolve with time.

5

Salivary Gland Tumors : Role of Radiotherapy

안 용 찬
성균관대학교 의과대학 치료방사선과학교실

배 경

타액선 종양은 전체 두경부 종양의 5~7% 정도를 차지하여 그리 흔치는 않은 편이다. 전체 타액선 종양의 약 85% 정도는 이하선에 생기고 이 중 약 3/4 정도는 양성 종양이다. 반면에 악하선 종양은 약 1/2 정도가 악성이고, 설하선 종양은 거의 대부분이 악성 종양인 것으로 알려져 있다. 또한 상기도 및 식도 부위(upper aerodigestive tract)에는 약 600개에서 1,000개 정도의 minor salivary gland nest가 흩어져 있으며 여기서 생기는 종양의 약 3/4 정도가 악성이다. 우리 나라의 정확한 통계자료는 없는 실정이고 삼성서울병원 치료방사선과의 방사선치료 신환 등록 자료를 보면 1994년 9월부터 1998년 10월까지의 모두 3,700 여명의 등록 환자 중에서 두경부 종양으로 방사선치료를 받은 환자들이 308명이며 이중에서 37명(12%) 이 타액선 종양 환자였다(major gland 22명, minor gland 15명).

악성 타액선 종양의 세포 조직형은 Batsakis에 의한 분류가 널리 쓰이고 있으며 편의에 따라서 low grade와 high grade의 두 가지 working model을 많이 사용한다. Low grade에 속하는 것으로는 low grade mucoepidermoid carcinoma, acinic cell carcinoma와 일부 low grade adenocarcinoma들이며 high grade에는 high grade mucoepidermoid carcinoma, 대부분의 adenocarcinoma, carcinoma ex pleomorphic adenoma, adenoid cystic carcinoma, malignant mixed tumor 그리고 squamous cell carcinoma들이 속한다. 세포 조직형과 분화도는 림프절 전이와 원격 전이의 빈도, 그리고 예후와 매우 밀접한 관련을 가진다. 이하선의 악성종양에서 림프절 전이의 빈도는 high grade mucoepidermoid carcinoma (44%), squamous cell carcinoma(37%), adenocarcinoma(25%), undifferentiated carcinoma(23%) 등이며 adenoid cystic carcinoma(5%)와 acinic cell carcinoma(13%) 들은 비교적 림프절 전이를 덜 하는 편이다. 원격 전이의 빈도는 adenoid cystic carcinoma(41%)와 undifferentiated carcinoma(37%)가 비교적 높은 편이고 다음으로는 adenocarcinoma(29%), carcinoma ex pleomorphic adenoma(20%), squamous cell carcinoma(14%), acinic cell carcinoma(13%), mucoepidermoid carcinoma(9%)의 순이다.

대개의 경우 타액선 종양의 초기 진단과 치료는 이비인후과, 일반외과, 성형외과를 포함하는 두경부 외과 분야에서 주로 관여하게 되는데, 병력과 이학적 진찰 소견상 타액선 종양이 의심되게 되면 CT나 MR등을 시행하여 종양의 정확한 위치, 크기, 주변 조직과의 관계 등을 파악하고 세침 흡인 세포 검사나 조직 생검 등으로 종양의 정확한 세포 조직형을 결정하게 된다. 가장 중요한 치료 방법은 수술적 절제로서 진단 영상 검사 등을 종합하여 수술 절제 가능성 여부를 우선 판단하게 된다. 전통적으로 타액선 종양은 '방사선에 잘 듣지 않는다(radioresistant)'고 여겨졌으나 수술만으로는 충분한 치료가 어려운 경우에 적용하는 수술후 방사선치료(Post-operative radiotherapy)와 절제 수술이 불가능한 경우에 적용하는 결정적 방사선치료(Definitive radiotherapy)와 같이 방사선치료는 타액선 종양의 치료에 있어서 중요한 역할을 담당하고 있다.

수술후 방사선치료 (Post-operative radiotherapy)

수술후 방사선치료의 적용은 일반적으로 다음과 같은 경우에 요구된다.