CONSIDERATIONS ON LIP CARCINOMAS

Luminița Rădulescu¹, B. Cavalieri², C. M. Mărțu³, D. V. Mărțu⁴

Abstract

Lip cancer is quite a rare malady which may have a good prognosis if approached correctly; the main conditions to be met for attaining good results involve: early diagnosis, an oncologically-correct treatment (of both the primary lesion and of the cervical ganglionary metastases), carefully observing the functional and aesthetic principles and a suitable monitorization of the malady by regular check-ups over long periods of time.

The present study analyzes the factors influencing the oncological, functional and aesthetic results obtained by surgical treatment of 8 malign tumours localized at the level of lips, which could improve surgical performance.

The literature of the field mentions that, in such cases, the risk of lip cancer development is 2.5 times higher than in the other segments of population. They were subjected to surgical treatment, i.e. tumour ablation.

Materials and method

The present study analyzes the factors influencing the oncological, functional and aesthetic results of the surgical treatments applied to 8 malign lip tumours, in an endeavour to improve surgical performance.

It is a part of a more extended cohort-type investigation performed over 6 years – between January 2001 and January 2007 – which included 183 patients (193 lesions) with malign tumours of the face, external ear and lips, all hospitalized in the Otorhynolaringology Clinic of the Recovery Hospital in Iasi. The analysis considered only the patients suffering from cancer in the labial region.

Also, the study considered only the histopathologically-diagnosed malign lesions, subjected to surgical treatment, regardless of the evolutive stage of the disease, of any personal antecedents, associated maladies or type of anaesthesia applied.

The study did not include patients with biopsy made before the surgical treatment, as well as those who refused surgical excision of the lesion. The patients had a surgical treatment involving ablation of the tumour.

Direct suture was performed in 3 cases, in which the size of the post-operative defect did not exceed half of the lip.

Malign lesions with facial localization, originating at the cutaneous level or at the level of the visible mucous membrane (vermilion) of the lip, have the common characteristic according to which excessive sun exposure is the major cause of their occurrence; to this, one should also add the anatomical and functional complexity of the facial regions, which requires a thorough knowledge of their structures and functions and, equally, of the basic concepts and principles of restoration, functional and aesthetic oncological surgery. Attainment of optimum therapeutical results depends on an unitary approaching of the human facies, which should be viewed as a whole. According to Zitsch R.P., as cited by Thawley S.E (1), lip cancer starts at the junction of vermilion margin with the skin, including exclusively the vermilion surface up to the buccal mucous membrane.
Results

Neoplastic lip lesions represent about 4% of the total number of malign tumours of the face and external ear, treated in our clinic in the 6-year period under consideration (fig. 1).

Out of the 8 patients with lip carcinomas, 7 were men (fig. 2).

The average age of the patients when the disease occurred was 64 years and when patients were examined by a physician their age was 65 or 62. The highest frequency of lip cancer is recorded in the 60 – 69 year group of age. The youngest patients with cancer were 48 year old and the oldest were 78 (fig.3)

All patients under investigation (4 from Iasi county, 2 from Vaslui county, 1 from Neamţ and 1 from Botosani) came from rural areas.

Three patients out of the total number of 8 (i.e. 37.5%) were diagnosed with recurrent tumours, two - with recurrence of spino-cellular carcinoma and one with baso-cellular carcinoma recurrence. Three patients declared they used to smoke and another one declared that he smoked and drank.

Three patients had cardiac disorders and one patient suffered from gastric ulcer.

Out of the 8 lesions, 6 lesions (75%) were spino-cellular carcinomas – representing 10.9% of the total number of carcinomas localized on the face and external ear, the remaining 25% being baso-cellular carcinomas – representing 1.42% of the whole number of baso-cellular carcinomas with facial and external ear localization (figs. 4 and 6 ).

From an anatomo-clinical perspective, 2 lesions were ulcerated, three were of the vegetative type, 1 lesion was ulcero-vegetating and 2 (the baso-cellular ones) were superficial carcinomas.

Four of the spino-cellular carcinomas were well-differentiated and 2 were moderately-differentiated.
Distribution of carcinomas according to the center of the lesion

Fig. 5. Lesion distribution according to localization

All 6 spino-cellular carcinomas were localized at the level of the lower lip, while the baso-cellular ones occurred at the level of the upper lip (figs. 5 and 6).

Fig. 6. Distribution of lip carcinomas according to their site and anatomo-pathological type

5 lesions (1 baso-cellular carcinoma and 4 spino-cellular carcinomas) were classified as T1, 2 lesions (1 baso-cellular carcinoma and 1 spino-cellular carcinoma) were classified as T2, and 1 spino-cellular carcinoma as T3. One lesion was classified as N1 (12.5%), the remaining ones being classified as N0 (Table 1). All lesions were classified as M0 according to the American Joint Committee for Cancer Staging 1988.

Table 1 - Distribution of lesions according to TNM

Diameter of the lesions varied between 1 ″i 4 cm, 2 lesions were 1 cm in diameter, 1 lesion - 1.5 cm in diameter, 3 lesions - 2 cm in diameter, 1 lesion - 3 cm in diameter, and another one - 4 cm in diameter.

All patients were subjected to prophylactic antibiotic therapy, usually Augmentin i.v., 30 min before surgery, and also for the next 3 days after the intervention.

In all cases, peripheral, regional (nerve block) anaesthesia or local infiltration with 1% Xiline was applied. In six cases, 1‰ adrenaline was added to the anaesthetic substance, as a vasoconstrictor.

No local recurrence has been observed in any of the patients over an average period of 36 months. Only one patient developed, 2 years after surgery, ganglionary recurrence.

Wedge excision and primary suture were performed in 3 cases, mentonier flap - 1 case, 2 Abbe flaps, fan flap (Gillies) technique - 1 case, angular flap - 1 case, labial flap with subcutaneous pedicle - 1 case.

Discussion

In the present study, the number of carcinomas localized at the level of the labial region was considered in comparison with the number of face and external ear carcinomas (197 lesions) - 3.9%, which indicates that the labial region is affected by cancer in quite a low number of cases, versus other regions (nasal pyramid - 65.85% of cases, external ear - 14.63% of cases, etc.). However, quite a high number of spino-cellular carcinomas present at the level of face and external ear - 10.9% - is localized in the labial region.

Analysis of the carcinoma site shows that, in all male patients, they occurred at the level of the lower lip, while those of the upper lip affected men in 50% of the cases - which agrees with literature data. The disease is more frequent in men, in 87.5% of the cases, in the experimental group the average age being 64 years, with a maximum recorded between 60 and 70 years; similar data provided by literature give an average age of cancer occurrence of 65 years (2).
The lowest age cited in literature is in the second part of life, in patients immunodepressed after organ transplants. In our experimental group, the youngest patient with lip cancer was 47, and the oldest one – 78 years.

All cancerous diseases of the lower lip were localized between the median line and the commissure. As a matter of fact, according to literature data, 85% of lip neoplasms occur in this area. No carcinoma was found at the level of the commissures, and statistical data indicate an 1% incidence of carcinomas localized at the level of the buccal commissure.

As to lesion localization at the level of the upper lip – in only one case (in a male patient) it occurred, at an equal distance between the median line and the commissure. In the second case, in the only woman of the group affected by lip neoplasm, the lesion had a paramedian position. Statistical data show that localization on the upper lip usually affects the paramedian region. It is believed that the baso-cellular forms do not originate from the mucous membrane of the lip, but from the adjacent cutaneous region, from where they invade the upper lip. Actually, baso-cellular carcinomas seem to be the most frequently occurring form of upper lip cancer.

The etiology of lip cancer has been analyzed in numerous studies (3,4), the conclusions drawn being, nevertheless, contradictory. Thus, Soubiran (2) asserts that the climatic factors, sun exposure, mainly, are not determining elements, while most American researchers noticed that 1/3 of the patients with lip cancer had a significant UV exposure, which supports the conclusion that excessive sun exposure is the most important etiological factor in the etiopathogeny of lip cancer. The Anglo-Saxon authors explain the higher frequency of lower lip cancer, in comparison with that of the upper one, by the fact that the inferior lip receives a higher amount of solar radiation.

Quite interestingly, all patients here under study were exposed to sun for long periods of time. The French authors consider the traumatism to be mostly responsible for this condition – be it accidental, professional or the result of a burn (2); they also explain the higher frequency of cancer recorded in Chinese women, compared with men, by the fact that women have the habit to chew a cancerigeneous substance – the betel. In the group under investigation, in none of the patients local traumatism appeared as a possible favourizing factor.

The role of smoking has been frequently incriminated in the etiopathogeneity of lip cancer. French statistics provide quite contradictory information, while the Anglo-Saxon ones view smoking, especially pipe, as an important etiological factor.

According to our own statistics, 4 patients, all males, were smokers (50%), their anatomo-pathological diagnosis being spino-cellular carcinoma.

French statistics (2) rule out unequivocally alcoholism among the etiological factors of lip carcinoma, while the Anglo-Saxon information include it together with an unsuitable dental hygiene.

Recently, lip carcinoma has been associated with immunosupression and especially with patients having suffered organ transplants and immuno-suppressive treatments (5,6). As known, such a therapy hinders body defence reactions through its immune system, so that recognition and destruction of the neoplastic cells become a difficult task. Our patients evidenced no immuno-deficiencies. None of them had multiple primary carcinomas at lip level. Instead, 25% of the patients showed synchronous neoplasies localized in regions exposed to sunlight.

One patient (R.M, 73 year-old, male, smoker, coming from Iași county, was diagnosed with double spino-cellular carcinoma localized at the level of the lower lip and of the auricular pavilion. A second patient, also male, D.D, 62-year old, from Iași, had three synchronous baso-cellular carcinomas at the level of the nasal pyramid, upper lip and auricle. Baker appreciates that the risk of cancer occurrence at lip level is 5.5 times higher when another cutaneous cancer is also present. More than that, the risk for smokers of developing a second cutaneous tumour is 6.4 times higher than for non-smokers.

12.5% of the patients affected by lip cancer evidenced pre-cancerous facial lesions. The
literature of the field mentions that the risk, for such persons, of getting lip cancer is 2.5 times higher than in the general population (6,7).

Another observation regarding the patients from the group under analysis is the absence of any association with syphilis (7). In spite of the fact that literature data records a higher risk for lip cancer in patients with syphilis (4.9 times higher), in our group no patient showed positive serological evidence for syphilis.

As to the localization of lip cancer, one should notice that, in most of the patients from the group (75%), the cancer was localized on the lower lip – the neoplasies at this level being spino-cellular carcinomas – all diagnosed in male patients. The 2 baso-cellular carcinomas were localized on the upper lip in a woman, and 1 baso-cellular carcinoma was detected in a male. Localization of baso-cellular carcinomas mainly at the level of the upper lip was actually evidenced by other authors, as well. referinte biblio?

In spite of the fact that the literature mentions other anatomo-pathological types (adenoid cystic carcinoma, adeno-carcinoma, muco-epidermoid carcinoma) (8), as well, no such histopathological variety was present in our series.

Out of the three anatomo-clinical types of spino-cellular carcinomas occurring on the lip: exophytic, ulcerative and verucos, the exophytic type was present in 66.6% of cases. This variety shows a slight predominance, compared with the ulcerative spino-cellular carcinoma – it extends its surface, evolves over a long period of time and shows the tendency to form late metastases – the tumour has 6-7 cm, with a minimum in-depth tissue destruction. The exophytic tumours diagnosed in our clinic were between 1.5 and 4 cm – without invading the subjacent muscle.

50% of the exophytic tumours appeared well-differentiated, the other half being moderately-differentiated carcinomas, which is consistent with literature data, according to which, usually, the exophytic variety corresponds to a higher or lower degree of histological differentiation (8).

Ulcerated carcinomas – representing 33.33% of the total number of spino-cellular carcinomas – evidenced a high cellular differentiation, as also shown by other statistics. In spite of their more reduced size (1-2 cm), compared with the exophytic forms – they have precociously infiltrated the subjacent muscle and got supra-infected, thus inducing sattelite adenite, wrongly clinically diagnosed as ganglionarry metastasis. No verucos carcinoma was diagnosed.

It is thought that 85% of lip spino-cellular carcinomas are well-differentiated (9-11). In the series here considered, only 66.67% of cases had this characteristic – more precisely, all ulcerated forms and 50% of the exophytic ones. The literature of the field mentions that 5% of the lip spino-cellular carcinomas are poorly-differentiated (10), which was not the case in our series.

The fact that lip tumours increase slowly, usually extending at surface, without affecting the deep layers, and also that their biological activity is quite low (which is specific for well-differentiated tumours, most of them occurring at this level) explains the absence of ganglionary metastases.

Out of the 6 patients affected by spino-cellular carcinomas, in 2 of them, clinical and ecographic investigations put into evidence ganglions with increased volume, which required nods dissection. The anatomo-pathological results indicated the absence of carcinomatous cells.

Patient O.G. – male, 78 year old, coming from the rural setting of Neamţ, a smoker who drank alcohol, diagnosed and operated with an Abbe flap for a well-differentiated spino-cellular, exophytic carcinoma of the lower lip (anatomo-pathologically confirmed) had a very good local evolution, and no recurrence. Approximatively 12 months after tumour’s ablation, a superior left jugulo-carotidian metastasic adenopathy with rapid evolution was installed – the ganglions increased in volume, becoming adherent to the deep tissues. There followed functional gan-glionary dissection. The anatomo-pathological examination of the ganglionary block confirmed the diagnosis of differentiated epidermoid carcinoma.

4 months later, the patient is again hospitalized, evidencing left jugulo-carotidian metastasic
adenopathy, with rapid growth in volume (4/4) cm, local inflammatory phenomena and skin fistulae. Ecographic investigation evidences infiltration of the internal wall of the primitive carotid along a 25 mm segment. The patient refuses any surgical intervention and dies 3 months later. This is the only death recorded in the group under study.

Development of cervical metastases after excision of the primary tumour occurred in 5-15% of cases. Numerous authors agree that most of the metastatic adenopathies occur about 2 years after the treatment of the primary lesion – the risk of its installation being proportional to the size of the tumours, its evolution period, and repeated local recurrences (12,13).

The general estimation is that, when being admitted in hospital, 10% of the patients with lower lip carcinoma also have adenopathy, the percent being slightly higher in those with upper lip carcinoma. In our group, one patient had cervical ganglionary metastasis when admitted in hospital, although most of the primitive tumours had a diameter exceeding 2cm (62.5%). Two patients had inflammatory cervical adenopathies (and larger tumour size, of 2 cm and, respectively, 4 cm in diameter), which made us think of their metastatic character, requiring ganglionary dissection. Superinfection of the primitive tumour and an incorrect hygiene of the oral cavity might explain the presence of ganglionary inflammation.

The positive diagnosis of lip carcinomas raised no special problems. Differential diagnosis was established on non-tumoral lesions: leukoplasy, cheilita, syphilis, as well as on benign tumoural lesions: papilloma, and also on ma-ligne ones (melanomae, sarcomae, tumours of the minor salivary glands).

Treatment of lip cancer is essentially radio-therapeutic and surgical. All patients from our group were subjected to surgery. Three of them had recurrent tumours (2 patients had been diagnosed with spino-cellular carcinoma, while the third one – with baso-cellular carcinoma). In two of them, more exactly in those with spino-cellular carcinoma, treatment of the initial tumour was of surgical nature. The patient with baso-cellular carcinoma had recurrence after radiotherapy.

In repairing the labial defects one should start from the idea that functional restoration is more important than the cosmetic result. Labial defects should be repaired with local flaps. Using other – distant – tissues, either tubular or even the frontal flap results in insufficiency of the oral sphincter, accompanied by continuous saliva loss, mastication and deglutition disorders. The patient with recurrence after radiotherapy remains with a scar at the level of the upper lip, accompanied by an anatomical and functional deficit, which was more intense after tumour reoccurrence. The deficit was solved when the lip was reconstructed, after excision of the tumoral recurrence.

In other two patients, the surgical treatment had to be followed by radiotherapy.

The reconstruction surgical procedures may be classified as:
- reconstruction with the tissue remaining from the affected lip;
- reconstruction with tissue from the opposite lip;
- reconstruction with tissue from the adjacent genian region;
- methods using flaps from a distance;

Several treatment schemes are in use (14,15). In our group, tumour ablation was performed, followed by direct suture in 3 cases, in which the sizes of the post-excision defect were less than half a lip (2 lesions of the lower lip and one lesion localized at the level of the upper lip); it is worth mentioning the fact that – in the case of the upper lip – the defect did not affect the median part. Primary closing up was made at three levels: skin, muscle, mucous membrane.

The second case of upper lip neoplasm, laterally localized, had recurrence after radiotherapy – with a secondary anatomical defect which was more severe after recurrence – requiring, following excision, reconstruction with a fan-shaped labiogenian flap (fig.7). The results were satisfactory – both aesthetically and functionally. However, this type of flap raises two important problems, namely: 1) a second surgical procedure for the reconstruction of the
buccal commisure and, 2) the use of this flap involves sectioning of the motor nerves which innervate the orbicular nerve of the lips. Complete re-establishment of the function needs about 2 years. Unlike the fan-type flap, Karapandzic (16) described a similar one – with its pedicle from the mucous layer – obtained through micro-dissection of the nervous filaments, followed by their conservation.

The angular flap was taken over from the upper lip, for its being further used in the reconstruction of the lower lip for patient R.D., 73 year-old, after excision of a spino-cellular carcinoma (fig. 8). In closing the defect three layers were involved: mucous membrane, muscle, skin, at the level of both donor and recipient region. The pedicle was placed in the medial region (fig.9 a,b). The shortcoming of such a flap is that it requires a second surgical procedure for sectioning and re-insertion of the pedicle. (17-20)

The main advantage resides in the fact that it permits displacement of a large amount of tissue placed on a small pedicle, while the scars from the donor region are hidden by the natural facial folds.

The Abbe-type pediculated flap is a composite one, being made up of skin, muscle and mucous membrane – it is an axial flap based on labial arteries.

Although, usually, it is taken over at the level of the lower lip, being used for the reconstruction of the upper lip, in one of our patients it had been taken over from the upper lip, for the reconstruction of the lower lip.
The extended defects of the lower lip were reconstructed with the angular flap taken over from the upper lip - 1 case, by means of the Abbe flap - 2 cases, with the mentonier flap - 1 case (fig.10 a,b,c) and with labial flaps with subcutaneous pedicle - 1 case (fig. 11 a,b).

The clinical results obtained were onco-logically, aesthetically and functionally good.

Development of cervical metastases following excision of the primary tumour had a 5-15% frequency. Numerous authors agree that most of the metastasic adenopathies appear about 2 years after the treatment of the primary lesion – the risk of its installation being proportional to the size of the tumours, its evolution period and local recurrence phenomena.

**Conclusions**

Lips cancer is quite a rare malady which may have a good prognosis if approached correctly; the main conditions to be met for obtaining good results involve: an early diagnosis, an onco-logically-correct treatment, strict observance of the functional and aesthetic principles, a suitable monitorization of the malady by periodical examinations performed over long periods of time.

**References**