

Prevalence of oral cancer patients at the Pathology Anatomy Department RSUD Tasikmalaya year 2002-2007

Murnisari Darjan

Department of Oral Biology Faculty of Dentistry Universitas Padjadjaran

ABSTRACT

Malignancy were included which happened in oral cavity. Oral cavity cancer is statistically fewer than other parts of a body but can be dead. The incidence of malignancy were increased in the last 50 years throughout the world. The purpose of this research is to get distribution data about oral malignancy cases frequency at Rumah Sakit Umum Daerah/RSUD Tasikmalaya. Rumah Sakit Umum Daerah Tasikmalaya is a Referral Hospital from East Priangan region, West Java Indonesia. This is retrospective descriptive research. Samples were taken from Histopathologic formulir data patient at RSUD Tasikmalaya from January 2002-December 2007. The result of this study indicated that 15 cases oral malignancy cases from all samples 2943 histopathology specimen in the period. The most malignancy cases of carcinoma were squamous cell carcinoma (98%). Tongue became the most area in this cases which was 46.66%. Oral malignancy were common in men 54%. The group of ages 60-70% were became the majority namely 40%. The conclusion of the research indicated that carcinoma cell squamous were became the greatest part of oral malignancy types.

Key words: Oral malignancy, RSUD Tasikmalaya, carcinoma

INTRODUCTION

Studies concerning oral cancer in Indonesia are infrequently found. Public hospitals as the center of public services reflect health conditions in the area. Tasikmalaya Public Hospital is a Health Service Center in East Priangan Region that can be easily accessed by people from the neighboring regions.

Neoplasm is an abnormal tissue undergoing overgrowth which does not have coordination with the growth of normal tissues and which continues to grow after the stimulus causing the change has gone.¹ Oral cancer is one of the life-threatening diseases, although it is rarely found compared to

other cancer incidents in different body parts. However, it is potentially fatal due to the fact that most of oral cancer patients are found when the cancer has reached the advanced stage. Sixty percents of oral cancer patients are generally found in advanced stages in the first visit and 80% of the deaths can actually be prevented by early detection.²

Neoplasm pathogenesis can be classified into multifactorial theory and multistage theory. In multifactorial theory, it is mentioned that there are so many factors causing neoplasm that work together so as to generate malignancy. This requires cooperation among genetics, hormones, and viruses. Meanwhile, in multistage theory, it is

said that malignant tumors appear not only due to a variety of causal factors (multifactorial theory), but also grow slowly through a progressive stage.

Oral cancer

Carcinoma is a malignant tumor of epithelium cells, including squamous cells, transitional cells and columnar cells, that starts from epithelium surface or from glandular tissues. Squamous cell carcinoma is a malignant tumor originated from stratified squamous epithelium. This is the most common oral cancer, accounted for more than 90% of all oral malignant neoplasms. This tumor usually grows slowly with pain, local destruction and accompanied by bacterial infections. Different from basal cell carcinoma, squamous cell carcinoma tends to metastasize through regional lymph node to distant places.^{1,3}

Squamous cell carcinoma grows on every stratified squamous epithelium or mucosa experiencing metaplasia, such as tongue, lips, esophagus, cervix, vulva, vagina, bronchus, and bladder. In oral mucosa or vulva, leukoplakia is the frequent predisposition for malignancy. The most common locations for squamous cell carcinoma are tongue, lips, palatum, tonsil, pharynx, and cheek mucosa. Lateral and ventral tongue peripheral and oral base are the most frequent parts. Other anatomical regions include mandibular alveolar mucosa, retromolar fossa and their combination. The surface of dorsal tongue is barely affected.⁴

The exact causal factors of malignancy has yet to be understood and, in this case, it is induced by multifactorial carcinogenesis in which the process occurs through initial steps, that is cells undergoing irreversible DNA alteration followed by the process of promotion in the presence of tumor promoters. Oral cancer has multifactorial causes, yet the cause of malignancy is still not ascertained. However, there is a strong presumption that tobacco may contribute to the oral cancer. Those etiological factors do not work independently, but rather in combination with multiple factors often found simultaneously in the oral environment.

Etiology factors include: Tobacco. Any kind of tobacco cigarette has been proven to be the cause of oral cancer; Habitual mastication. A pan comprises of betel nut and lime wrapped in betel leaves, tobacco, and other spices; Alcohol.

Epidemiological studies in several countries show that the risk of oral carcinoma is 10-15% higher in people who consume alcoholic beverages; Industrial risk. Independent studies indicate a high incidence of oral carcinoma among textile laborers, especially those who are exposed to dusts from cottons and raw wools; Poor oral hygiene; Actinic radiation. Sunlight is probably one of the factors of carcinoma; Epithelial atrophy. This can increase carcinogen absorption through oral epithelium; Virus. Herpes simplex viruses (HSV) can be carcinogenic or co-carcinogenic under certain conditions and also need to be considered as one of the etiological factors of oral carcinoma; Immunosuppression. Lips carcinoma develops in patients undergone kidney transplantation. This is probably resulted from immunosuppression therapy; Candida infection. Ceratotic lesions correlate with chronic candida infection such as candidiasis, chronic hyperplasia, and are susceptible to malignancy transformation. It has also been asserted that fungus is responsible in the transformation.

Clinical overview

Early lesions usually appear as symptoms and show various appearance with the most common ones showing white colors, no ulceration or erythema exophytically, slow ulcers or erythroplakia area, asymptomatic. Clinical signs that may trigger suspicion in this early lesion period include recurrent ulceration, induration and fixation of tissues strongly adhered to the base, as well as the destruction of underlying alveolar bone. Lymphatic nodes are involved in early oral carcinoma. However, dilating regional nodes do not always indicate metastatic distribution, but rather showing a non inflammatory change.

Almost 80% of tongue cancers are located on the 2/3 of anterior tongue and only a few on posterior tongue. Cancers located on the 2/3 of anterior tongue are more easily-detectable in the early stage than those on the 1/3 of posterior tongue. Lip cancer is always related to people with outdoor activities such as fishermen and farmers. Sunlight may have involved in triggering lip cancer. Generally, it is more frequently found on the lower lip than the upper lip. Lesion can be in the form of small modules or ulcers that are recurrent, or it has papillary-shaped, ulcerative,

or infiltrative forms.

Cancer on oral base is usually related to alcohol and tobacco consumptions. Clinically, ulcers with protruding and solidified periphery located near the lingual frenulum are often found. Cancer on cheek mucosa is related to habitual mastication of betel nut, betel leaf, lime, and tobacco mix. The fringe contacts left and right cheek mucosa for several hours. In society that has inverse-cigarette smoking habit, palatal cancer is an exophytic growth as well as an extensive basal growth with nodular surface. If lesion develops, it will fill the entire palate. Cancer on palate results in palatal perforation and will extend to nasal cavity.⁵

Pathogenesis

Most of oral cancer cases exceed the premalignant phase (dysplasia or in situ carcinoma), while some others occur as de novo cancer without previous lesion, clinically and microscopically. Invasive carcinoma has the ability to penetrate basal membranes and connective tissues, as well as the ability to enter the vascular system. These tumors have biologic capability through molecular lesion within the gene and protein related to cell movement and extracellular matrix degradation. Change in cell adhesion molecule phenotype (for example, cadherin and integrin) results in cells release from normal surroundings so they can migrate.

Another important feature of cancer is the increased replication ability. Telomere is a DNA-protein complex found at chromosome end and is required for chromosome stability. Normal cells have certain life span, corresponding with telomere shrink that occurs at the end of cell division. When telomere reduction has reached a certain level, the chromosome and the cell will undergo degradation. Cancer cells often have the ability to maintain the length of telomere and chromosome integrity in order to function longer. This is correlated with the production of telomerase, an intranuclear enzyme found in cancer cells, and not in normal mature cells. Most of head-cervix carcinomas have telomerase activities through enzyme neo-expression, producing long lasting neoplasm cells.

Histopathology

Most of oral squamous cell carcinomas are moderate or fine differentiating lesions. Keratin pearls and individual cell keratinization are often found. Invasions to surrounding structures in form of small nests consist of hyperchromatic cells are also typical for this carcinoma. In situ carcinoma extending to excretory duct of saliva gland is a high risk microscopic indicator for recurrences. Variations among tumors are seen from the number of mitosis, nuclear pleomorphism, and keratinization. On HE staining of poorly differentiated lesions, keratins are not found or only seen in a very small number. However, an immunohistochemistry test can be performed in order to find out antigen determinants in unobserved keratin intermediate filaments. Inflammatory responses are often found in the surrounding tumor cell nests. Lymphocytes, plasma cells, and macrophages are also found abundantly.

RESULTS AND DISCUSSION

Rumah Sakit Umum Daerah (RSUD) Tasikmalaya is a health service center in East Priangan Region that can be easily accessed by people from the neighboring regions in the period of 2002 until 2007. The hospital provides services of histopathological examination on suspicious cases of 3,943. From year to year it experiences significant improvements corresponding to hospital functions as to provide complete services where Pathology Anatomy Department is one of the supporting departments for making diagnosis for better prognosis.

Table 1 shows the increased number of cases

Table 1. Number of histopathologic examination in Pathology Anatomy Department RSUD Tasikmalaya period 2002 Jan 2007 Des.

Year	Total case	%
2002	157	3.98%
2003	454	11.51%
2004	467	11.84%
2005	756	19.17%
2006	995	25.23%
2007	1,114	28.27%
Total	3,943	100.00%

Table 2. Number of histopathologic examination in dental clinic RSUD Tasikmalaya period 2002 Jan 2007 Des.

Year	Male		Female		Total	%
		%		%		
2002	2	7.69	1	5.88	3	6.97
2003	7	26.92	3	17.64	10	23.25
2004	5	19.2	3	17.64	8	18.60
2005	10	38.46	5	29.4	15	34.88
2006	2	7.73	4	23.52	6	13.95
2007	-	0	1	5.9	1	2.35
Total	26	100	17	100	43	100

Table 3. Total case of oral cancer in RSUD Tasikmalaya period 2002 Jan 2007 Des.

Year	Male		Female		Total	%
		%		%		
2002	-	37.50	1	14.28	1	6.66
2003	3	12.50	-	-	3	20
2004	1	37.50	2	28.57	3	20
2005	3	12.50	3	42.87	6	20
2006	1	12.50	-	-	1	6.66
2007	-	-	2	14.28	1	6.66
Total	8	100	7	100	15	100

Table 4. Frequency distribution of oral cancer patient based on histopatologic dan location in RSUD Tasikmalaya.

Year	No	Sex	Age	Diagnose	Location
2002	1	Female	40	Keratinizing Epidermoid Carcinoma	Tongue
2003	2	Male	37	Epidermoid Carcinoma	Gingiva
	3	Male	65	Keratinizing Epidermoid Carcinoma	Tongue
	4	Male	50	Non Keratinizing Epidermoid Carcinoma	Palatum
2004	5	Female	30	Non Keratinizing Epidermoid Carcinoma	Tongue
	6	Male	60	Undifferentiated Epidermoid Carcinoma	Tongue
	7	Female	50	Keratinizing Epidermoid Carcinoma	Gingiva
2005	8	Male	39	Keratinizing Epidermoid Carcinoma	Tongue
	9	Female	65	Non Keratinizing Epidermoid Carcinoma	Gingiva
	10	Female	55	Non Keratinizing Epidermoid Carcinoma	Buccal Mucous
	11	Male	55	Keratinizing Epidermoid Carcinoma	Lip
	12	Male	8	Keratinizing Epidermoid Carcinoma	Tongue
	13	Female	28	Undifferentiated Epidermoid Carcinoma	Buccal Mucous
2006	14	Male	64	Keratinizing Epidermoid Carcinoma	Gingiva
2007	15	Female	58	Pseudocarcinoma	Tongue

every year that corresponden to the increased number of patients who visited Rumah Sakit Umum Daerah Tasikmalaya. This indicates the society awareness for health seeking as well as advanced development of diseases which requires laboratory examinations to achieve accurate diagnosis

and medication. Examinations of microscopic preparations in Pathology Anatomy Department have a purpose to diagnose malignancy, including oral malignancy, since cancer is the second major cause of death after cardiovascular diseases, which also contributes significantly to adult mortality

rate in developing countries.

The presence of Pathology Anatomy Department is absolutely required for services in a hospital and it is supported by surgeons, especially oral surgeons. This is reasonable since cases found are not only malignancy related but also lesions which tend to reside that need to be examined histopathologically so early diagnosis can be obtained as well as evaluations from illness progression.

Of 3943 cases received by Pathology Anatomy Laboratory, cases from the dental clinic are relatively few, i.e. only 43 cases (1.09%). This fact seems to make oral cases as ignorable, but it continues to present problems in clinics since patients who come to dental clinics of a hospital generally are those who are already in advanced stages and having difficulty in mastication and speech. Mostly the frequency of oral malignancy is about 3% of all other malignancies. Tab. 2 shows the peak cases of the dental clinic in 2005 showing 15 cases (34.88%) and decreasing. This occurred due to the fact oral malignancy cases extended to head and neck regions were managed by general surgeons and were not sent from dental clinic, or simply because there were no jaw surgeons in Tasikmalaya or tissues were referred to out of towns so there was only one case in 2007 (2.35%). The data should be considered by the dental clinic of Rumah Sakit Umum Daerah Tasikmalaya, whether any disorder in oral originated from hard tissues which are tooth and jaw bone as well as soft tissue or gingiva and saliva gland manifested in oral mucosa has been sent to general surgical department or not. It is advisable that not only the malignancy suspects that are sent to Pathology Anatomy Laboratory RSUD Tasikmalaya but also other lesions need to be examined since in early stages they can hardly be identified by only visual examination. Moreover, patients of post-surgery, chemotherapy or radiotherapy need to be evaluated as well to see whether there are side effects manifested in their oral cavity.

Table 3 shows a prevalence of oral cancer patients in Pathology Anatomy Laboratory in 2002-2007 of 15 cases of malignancy with the number of male patients were almost as many as female patients. In the literature of oral malignancy incidence, the ratio of male patients to female patients is 2:1, but the fact today tend to show

that incidence on female patients is increasing, hence the incident value is almost the same. This is due to in the increased number of female smokers and the fact that smoking is considered as one of the causes of oral malignancy because tobacco is a carcinogenic agent. Most studies show that oral cancers are experienced in the fourth decade of life and reach the highest point in the seventh decade of life. In this study there were three cases 20% at the age of 30-40, two cases 13% at 41-50, four cases 26% at 51-60 and most cases at 60-70, i.e. six cases 40% (Tab. 4).

In Tab. 4 according to the literature, malignancy in oral cavity originates from mucosa epithelium layer, which is epidermoid carcinoma.

Other oral diseases beside malignancy that can cause death also need to be examined histopathologically so they can be detected earlier. The diagnosis is performed based on anamnesis and clinical examinations in the laboratory. According to the literature, oral malignancy mostly originates from epithelium (epidermoid carcinoma) which is accounted for 90% of all malignancies where the most locations of occurrences are tongue in seven cases 46.66%, followed by gingiva in four cases 26.66%, buccal mucosa in two cases 24.66%, and palatum and lips in one case 6.66%.

At early stage, cancer is difficult to detect clinically since it does not show any significant changes in color, texture, tissue consistency. Hence, a dentist should be able to recognize it earlier, since based on the literature, every resident lesion should be observed because visually they can be detected from the changes in mucosal epithelium.

Epidermoid carcinoma appears on oral mucosa surface by infiltrating underlying tissues. In cases with good differentiation, keratin pearls are observed, whereas in worse differentiation they are not. As a whole, cases examined in Pathology Anatomy Laboratory of Rumah Sakit Umum Daerah Tasikmalaya, show that the most frequently found malignancy is breast carcinoma, followed by cervix carcinoma, connective tissue carcinoma and thyroid gland carcinoma.

CONCLUSION

Oral cancer patients in Pathology Anatomy Laboratory of Rumah Sakit Umum Daerah

Tasikmalaya in 2002-2007, were relatively few, i.e. 15 cases of 3,943 histology examinations in Pathology Anatomy Laboratory and most of them, i.e. seven cases 46.66%, were located on tongue, whereas at the age of 60-70 there were six patients 40%.

SUGGESTIONS

All cases from Dental Clinic of Rumah Sakit Umum Daerah Tasikmalaya that are suspected of malignancy need to be examined histopathologically in order to get early diagnosis for accurate treatment and better prognosis. More oral surgeons should screen patients in Tasikmalaya and the surrounding regions to improve services at the dental clinic.

REFERENCES

1. Robbins C. Pathologic basis of disease 7th ed. Elsevier-Saunders. 2008.
2. Soames JV, Saouthand C. Oral pathology. New York: Oxford University Press; 1985.
3. Stevens A, Lowe J, Young B. Wheeler's basic histopathology. Churchill Livingstone; 2007.
4. Van der Waal, Pindborg. Diseases of The Tongue. Chicago-Illinois: Quintessence Publishing Co. Inc.; 1996.
5. Shafer H, Levi. Textbook of oral pathology 5th ed. Elsevier. 2007.
6. Regezi SJ. Oral pathology 5th ed. Saunders-Elsevier. 2008.