Original research

THE TREATMENT OF TONSILLAR SQUAMOUS CELL CARCINOMA AT HUE CENTRAL HOSPITAL

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ABSTRACT

Objective: *To explore some clinical features, treatment selection and middle-term outcomes of patients with tonsillar squamous cell carcinoma at Hue Central Hospital.*

Methods: *A prospective study was conducted in a total of 29 patients with squamous cell carcinoma of the tonsil who had been diagnosed and treated at Hue Central Hospital from 1/2018 to 6/2020.*

Results: *Patients aged over 50 years old were the most seen (accounted for 69%). The mean of age was 57.1 ± 12.8, the ratio of male and female was 1.4/1. The major reason was odynophagia (accounted for 69%). Patients in advanced stage were most often. The cumulative survival rate at 24 months and advanced-stage were 85,7%, 63,6% respectively. All patients with primary surgery followed by adjuvant radiotherapy were still alive in follow-up period, 30 months. The cumulative survival rate of the palliative treatment group at 12 months was 21.9%.*

Conclusion: *Primary surgery followed by adjuvant radiotherapy is an effective treatment of squamous cell carcinoma of the tonsil.*

Keywords: *Tonsillar squamous cell carcinoma, surgery*

I. INTRODUCTION

Tonsillar squamous cell carcinoma (SCC) is a malignant tumor of. Tonsil cancer is the most common form of oropharyngeal malignancy. According to US Surveillance and Epidemiology and End Results (SEER) (2017), the incidence rate of tonsillar and oropharyngeal cancer was 2.1/100,000 in the population, the death rate was [1]. The most common risk factors for tonsil cancer include: in middle-aged men, a history of smoking and alcohol, human (HPV) infection. It was often misdiagnosed with chronic tonsillitis or pharyngitis in the early stage.Patients were examined in late when the symptoms were obvious, such as odynophagia, weight loss, tumor enlargement and invasion. Three histological types of tonsil cancers include squamous cell carcinoma, sarcoma and lymphoma. Squamous cell carcinoma was the most common, 70-80% of all types, around 50% of patients present with metastasis to the cervical lymph nodes. Treatment for tonsil carcinoma included surgery, radiotherapy, chemotherapy. Singled or combined therapy was indicated depending on staging and the patient's condition. Early tonsillar SCC

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can be effectively treated with either surgery or radiotherapy alone. However, in advanced stages, a combination of primary surgery and postoperative radiotherapy is the traditional treatment of choice. Foote R.L. et al. showed that the cumulative rate at 5 years of patients with stage IV tonsillar carcinoma who received surgery followed by radiotherapy was 78%, and surgical therapy alone was 43% [2]. The purpose of this study was to explore some clinical features, treatment selection and middle-term outcomes of patients with tonsillar squamous cell carcinoma at Hue Central Hospital

II. MATERIALS AND METHODS

2.1. Materials and methods: A prospective study was conducted in a total of 29 patients who had been diagnosed with tonsillar squamous cell carcinoma for the first time and treated at ENT Department, Hue Central Hospital, from 1/2018 to 6/2020.

2.2. Research process: Pretreatment evaluations included a physical examination, endoscopy tumor mapping and biopsy, computed tomography (CT) or magnetic resonance imaging of the primary tumor and the neck and routine laboratory studies. Patients were staged according to the TNM Classification system. Treatment records were reviewed. The treatment selection based on the disease stage and patient's condition. The treatment modalities included surgery alone, surgery with adjuvant therapy. After treatment completion, the patients entered a monthly follow-up program for the year and every 3 months thereafter. All data of patients, clinical, features, management, intraoperative and postoperative complications were collected. Patients were followed up in 30 months, and recorded survival time, recurrent diseases.

2.3. Statistical analysis: Data was analyzed using IBM SPSS 22.0 software. Kaplan-Meier survival curve were used to analyze time to event data and to compare two groups of subjects at 12^{th} month, 24^{th} month The log rank test was used to compare the survival distributions of two samples. A p-value less than 0.05 was statistically significant.

2.4. Research ethics: This study was approved by The Institutional Ethics Committee of Hue Central Hospital.

III. RESULTS

3.1. Clinical characteristics of tonsillar squamous cell carcinoma

The characteristics of the patients are summarized in **(Table 1)**. Patients aged over 50 years old were the most seen (accounted for 69%). The mean age was 57.1 ± 12.8. The ratio of male and female was 1.4/1. The main reason for examination was odynophagia, 20/29 of cases.

Table 1: Patient characteristics

	n = 29	%	p value
≤ 40	2	6.9	
41 - 50	7	24.1	p < 0.05
51 - 60	10	34.5	
> 60	10	34.5	
Average age: 57.1 ± 12.8 (min - max: 32 - 83)			
Male	17	58.6	p > 0.05
Female	12	41.4	
Odynophagia	20	69.0	
Neck lump	5	17.2	p < 0.05
Tonsil ulcers	3	10.4	
Coincidence	1	3.4	

Of the 29 patients in our study, 24 (82.8%) had ulcerative tumor. 19 patients (65.3%) were in the advanced stage **(Table 2)**. Figure 1 showed some features of tonsil SCC on contrast-enhanced CT of tonsil SCC. There were 72.4% of case with contrast - enhancement, 66.7% of cases with strong enhancement and 85.7% of cases with non-homogeneous density.

Table 2: The tumor characteristics

	n = 29	%	
Ulcer	24	82.8	p < 0.05
Enlargement	5	17.2	
Early stage	10	34.7	p > 0.05
Advanced stage	19	65.3	

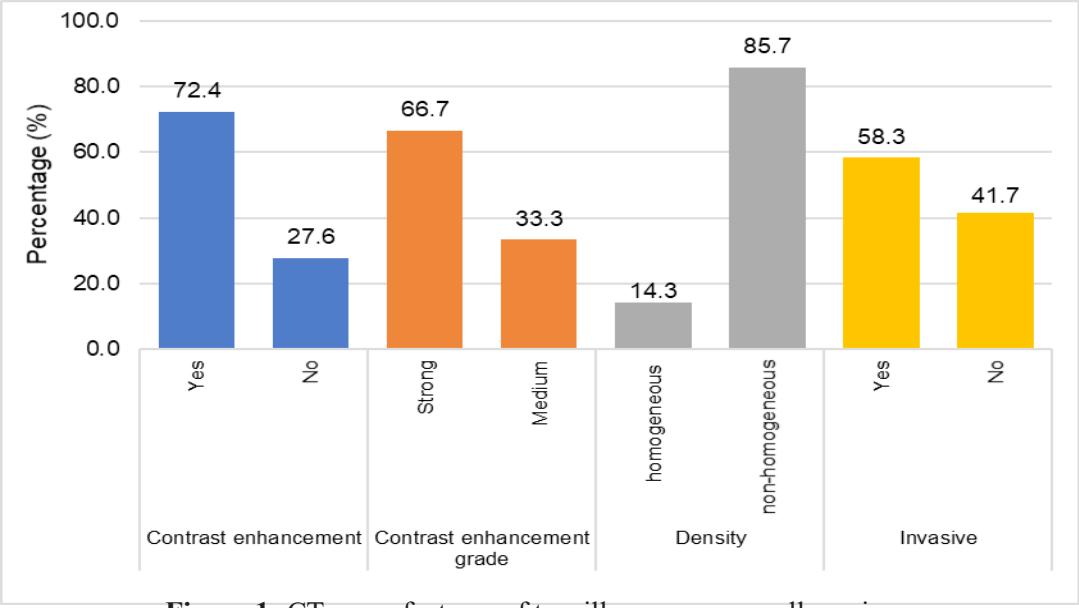

Figure 1: CT scans features of tonsillar squamous cell carcinoma

3.2. Results of tonsillar squamous cell carcinoma treatment

Table 3 listed the treatment selection of 29 patients. There were 12/29 of cases (41.4%) primary surgery followed by radiation adjuvant, 24,1% of surgery alone. The average age of tumor management group was 51,7 ± 9,9, of palliative care group was 65,6 ± 13,9. The difference of age in treatment selection was statistically significant with p < 0.05 **(Figure 2)**.

Table 3: Treatment selection for tonsillar squamous cell carcinoma

	n = 29	%	
Surgery alone	7	24.1	p > 0.05
Primary surgery with adjuvant therapy	12	41.4	
Palliative care	10	34.5	

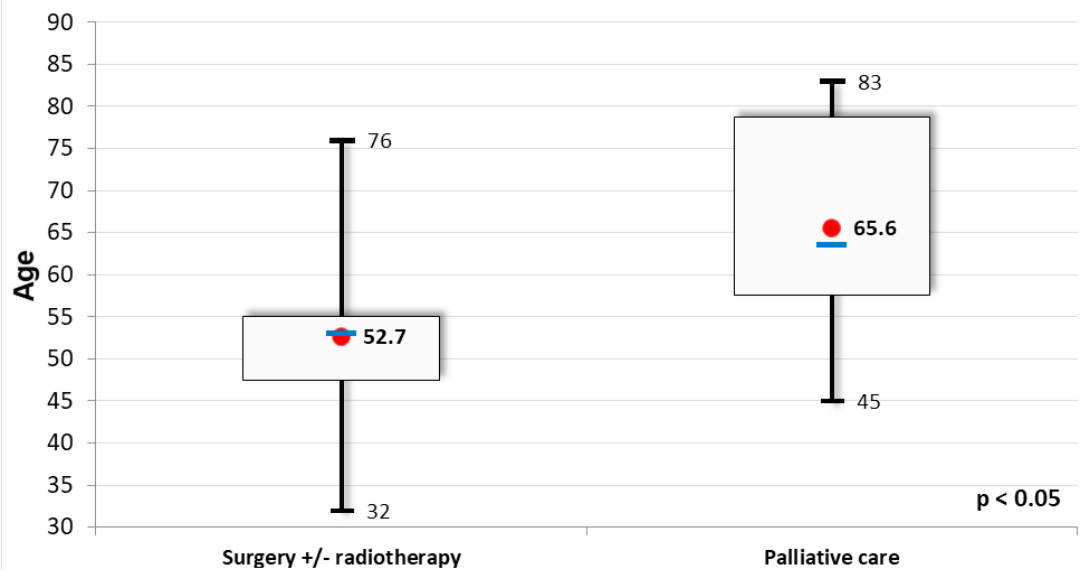

Figure 2: The mean of age in treatment selection

After middle-term follow-up, the overall survival rate at 24th month of early-stage was 85.7%, of advanced-stage was 63.6%. All patients who had tumor management including surgery alone or primary surgery followed by radiation adjuvant were stills alive during the following - up period, 30 months. The cumulative survival rate at 12nd month of palliative care group was 21.9%. There was a significant difference in the survival time between the tumor management group and the palliative care group.

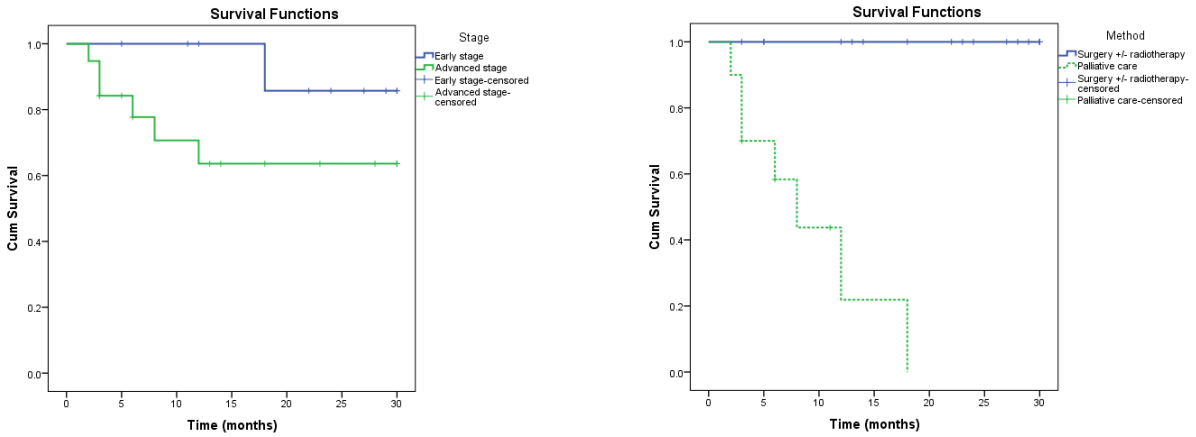

Figure 3: The Kaplan - Meier for stage disease (A) and method selection (B)

IV. DISCUSSION

4.1. Clinical characteristics of tonsillar squamous cell carcinoma

Patients 50 years old accounted for the majority, 69%. The mean age of patients was 57.1 ± 12.8 years old. The ratio of male and female was 1.4/1. Vu Thi Tam Uyen (2014), the age group 50 - 59 accounted for 40% [3], Tran Quang Long (2013) the rate of age group 50 - 59 was 38.7% [4]. We found that the incidence of male was higher than female. According to Tran Bao Ngoc (2001), the ratio of male/female was 2.3 / 1 [5], Nguyen Dinh Phuc, the ratio of male/female was 1.6 / 1. Tonsillar SCC is the most common type of oropharyngeal cancer, belongs to head and neck cancer. This disease is most common in male who had smoking, alcohol and being infected HPV.

There were 69% of patients who were hospitalized because of odynophagia. The rate of ulcerative type of tumor was dominant, 82,8% (table 2). That reason why most of the patients felt pain or difficulty in swllowing. According to Vu Thi Tam Uyen (2014), the most common symptoms were odynophagia (90%), dysphagia (76%) [3]. Tran Quang Long et al. (2013) showed that these symptoms included sore throat, odynophagia and dysphagia were the main reasons for examination of the patient with oropharyngeal malignant [4]. The most common early warning sign of tonsil cancer was a middle-aged men with persistent difficulty or pain in swallowing.

We found that there were 65,3% of patients in advanced-stage **(Table 2)**.Vu Thi Tam Uyen (2014) accounted for 52% of patients with tonsil SCC in advanced-stage [3]. The study of Youngkyong Kim (2017) noted that there was 76,2% of tonsil SCC cases in advanced-stage [6]. Yao-Yuan Kuo (2013) reported that the rate of patients with advanced-stage was 67.6% [7]. The early stage of oropharyngeal diseases have the same symptoms ie.odynophagia, dysphagia and easily misdiagnosing with chronic pharyngitis. We found that when these symptoms interfered with daily life, unresolved symptom after self-treatment or get some information about cancer diseases. At the cottage hospital, when detecting a suspected malignant lesion in the tonsils, elderly patients were often transferred to our hospital for further definitive diagnosis and treatment. It was explained that patients over age 50 were most popular in our research. That was one of the factors which affected the method selection and results of treatment.

Figure 1 showed the features of the tumor on CT-scan. On contrast-enhanced CT of tonsil SCC, there were 72.4% of cases with contrast - enhancement, 66.7% of cases with strong enhancement and 85.7% of cases with non-homogeneous density. These characteristics were specific signs of tonsillar SCC.

4.2. Treatment results for tonsillar squamous cell carcinoma

In this study, of the 19 (65.5%) patients who underwent surgical resection of the primary tumor, soft palate resection, neck dissection. There were 12 (41.4%) patients with primary surgery followed by radiation adjuvant. Yao-Yuan Kuo (2013) reported that primary surgery followed by radiotherapy accounted for 41% (43/105 cases)[7]. Tae Ryool Koo (2012) researched on 235 patients with tonsillar squamous carcinoma at Seoul National University Hospital, Korea, the rate of surgery combine radiation was 46% [8]. The rates of treatment selection in our study was equal to some other studies. Comparing to the advantage of preservation method (i.e.: 3D radiotherapy, IMRT…), which was suitable for many patients, for multimodality therapy was often more careful to ensure the best result. The patient was evaluated many factors including the patient's general condition, underlying disease, the risk of intra and post-surgery. In this study, there was a statistically significant difference in average age between tumor management group (51.7 ± 9.9) and palliative care group (65.6 ± 13.9), figure 2. We noticed that there were many factors which affected the both treatment selection and its results, included age, budget, patient's psychology. We highly recommended that counseling pre-treatment played an important role. The health insurance could decrease medical financial burden. We found that patient's age and treatment fee were the major problem which barried the treatment following.

The overall survival rate at the 24th month of the early-stage was 85.7%, of advanced-stage was 63.6%. All patients who had tumor management including surgery alone or primary surgery followed by radiation adjuvant were stills alive during the following - up period, 30 months. The cumulative survival rate at 12nd month of palliative

care group was 21.9% (figure 3). A statistically significant difference in rate of cumulative survival at 12nd month of treatment selection was noticed by Log-rank test, $\chi^2 = 24,5$, $p = 0,0001$. As many recent research, the overall survival depends on the disease stage.

In the early-stage of tonsil SCC, there was no difference in result between preservation method, i.e. radiotherapy, chemotherapy and surgery treatment. Many authors showed that tonsillectomy by monopolar or laser and following - up carefully archived good result, oropharyngeal function restoration and complication of radiation therapy i.e. mucositis, infections, saliva change, fibrosis, sensory dysfunctions, dental caries, periodontal disease, and osteoradionecrosis. However, in advanced-stage of tonsil SCC, it was completely different and there is still a lot of controversial results and multimodality therapy recommendation. A multimodality therapy, primary surgery followed by radiation adjuvant was noted a high success rate, decreasing complication of radiation meaningful and the overallsurvival time longer.

V. CONCLUSION

In conclusion, a multimodality treatment is a reasonable treatment option for tonsillar squamous cell carcinoma. There was a significant difference between the tumor management group and the palliative group. Therefore, treatment selection should be based on multidisciplinary pretreatment counseling and personnel available at each institution. Our study does have the limitation that the follow-up time is a middle-term. A small number of patients and heterogeneous characteristics should be validated in a large randomized study.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

REFERENCE

1. Mourad M, Jetmore T, Jategaonkar AA, Moubayed S, Moshier E, Urken ML. Epidemiological Trends of Head and Neck Cancer in the United States: A SEER Population Study. J Oral Maxillofac Surg 2017;75:2562-2572
2. Bernier J, Chapter 29: Multidisciplinary Management of Oropharynx Carcinomas, in Head and neck cancer : multimodality management. 2016, Springer. 401-430.
3. Vu TTU, Study on clinical, paraclinical characteristics and some risk factors of tonsillar squamous cell carcinoma, in Hanoi Medical Univerity. 2014, Hanoi Medical Univerity: Hanoi.
4. Tran QL, Tran PCT. Research of clinical characteristics and pathologic finding of the oropharyngeal cancer at the Ear, Nose and Throat Department - Choray hospital from 1/2001 to 12-2012. Vietnam Journal of Otorhinolaryngology - Head and Neck Surgery 2013;58:58-63
5. Tran BN, Study on clinical characteristics, pathologic finding and results of radiotherapy of tonsillar squamous cell carcinoma, in Hanoi Medical University. 2001, Hanoi Medical University: Hanoi.
6. Kim Y, Cho KH, Moon SH, Lee CG, Keum KC, Lee SW, et al. Comparison of the Clinical Outcomes of Patients with Squamous Cell Carcinoma of the Tonsil Receiving Postoperative Ipsilateral Versus Bilateral Neck Radiotherapy: A Propensity Score Matching Analysis (KROG 11-07). Cancer Res Treat 2017;49:1097-1105
7. Kuo YY, Chu PY, Chang SY, Wang YF, Tsai TL, Yang MH, et al. Treatment selection for tonsillar squamous cell carcinoma. J Chin Med Assoc 2013;76:211-7
8. Koo TR, Wu HG, Hah JH, Sung MW, Kim KH, Keam B, et al. Definitive Radiotherapy versus Postoperative Radiotherapy for Tonsil Cancer. Cancer Res Treat 2012;44:227-34