

FNAB's and Incisional Biopsy on Nasopharyngeal Cancer

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Introduction

The cases of nasopharyngeal cancer (NPC) frequently found in advanced stage. This happened due to location of nasopharynx is isolated in the posterior part of nasal cavity, under the skull bases and above oropharynx. According to American Joint Committee on Cancer (AJCC), the stages of NPC divided into stage 1 to 4. Stage 1 define as a tumor localized on nasopharynx without any enlargement of lymph node on the neck. On the other hand, stage 2 or higher, the neck node must be appear at least on one side with the diameter less than 3 cm or bigger.¹

The management of neck lymph node is one of the important things on the management of nasopharyngeal cancer. There is some question appear related to management of neck lymph node on the case of its enlargement. Is it necessary to manipulated the neck node or are there any benefit of fine needle aspiration biopsy (FNAB) or incisional biopsy on the presentation of neck lymph node?. This paper will describe about the benefit and disadvantages as well as indication to perform FNAB and incisional biopsy of the neck lymph node and its relation to nasopharyngeal cancer management.

Epidemiology of nasopharyngeal cancer

The incidence of nasopharyngeal cancer is found difference between one country to the others. The high incidence is found in South China and Southeast Asia, including Indonesia. In Indonesia, the incidence is 6,2/100.000 or almost 15.000 cases will be find annually,² furthermore, in West Nusa Tenggara Province with 4,8 million population,³ the number of cases predicted about 300 per year.

According to epidemiologic data in West Nusa Tenggara Hospital, from January to December 2015 found 48 patients. The cases became from all district in West Nusa Tenggara with the highest incidence in west Lombok (27%). The most cases found in male with the male to female ratio 3:1. Based on age category, the most cases found under 50 years old (69%) with the peak incidence in 40 years old. The detailed data as showed on table 1.⁴

Recent study found that most cases found on the advance stage, Xing Li et al (2018) found on their research about 61% were found on stage 3 and 4. According to AJCC, on stage 3 and 4, the neck node must be appear.⁵ Pelealu et al (2015) found the cervical node enlargement on 26 patients (50%) nasopharyngeal cancer.⁶

Although not all of enlargement of lymph node on the cervical are cancer, the fact showed that most of them are the spreading of others disease from the other site of body. Zbaren et al (1993) found that 80% metastasis lymph node on the neck is originated from ear, nose and throat region. Ten percent of them is originated from bronchus and esophagus.⁷ In advance, Adoga et al (2009) found almost 80% of patients with cervical lymph node enlargement are originated from nasopharyngeal cancer.⁸

Table 1. Distribution of nasopharyngeal cancer in West Nusa Tenggara Province (January – December 2015)

District	Frequency N (%)	Gender		Age category	
		Male N (%)	Female N (%)	<50 N (%)	>50 N (%)
Mataram	6 (13)	5 (11)	1 (2)	5(11)	1(2)
West Lombok	13 (27)	8 (17)	5 (11)	8(17)	5(11)
Central Lombok	12 (25)	8 (17)	4 (9)	9 (19)	3 (7)
East Lombok	8 (17)	5 (11)	3(7)	5(11)	3(7)
North Lombok	2 (4)	2 (5)	0 (0)	1(2)	1(2)
Sumbawa	1 (2)	0 (0)	1(2)	1(2)	0 (0)
West Sumbawa	1 (2)	1(2)	0 (0)	1(2)	0 (0)
Dompu	1 (2)	1(2)	0 (0)	1(2)	0 (0)
Bima	3 (6)	2(5)	1(2)	2(5)	1(2)
Bima city	1 (2)	0 (0)	1(2)	0 (0)	1(2)
Province	48 (100)	32 (67)	16 (33)	33 (69)	15 (31)

Based on the fact above, all physician should be aware to looking for the primary site of cervical lymph node enlargement. A complete work up should be done to explore the primary site, including history taking, physical examination especially ear nose and throat as well as surrounding organ such as eyes and nerve disorder, additional examination such as imaging with CT scan or MRI with contrast, endoscopic view and serologic for Epstein Barr virus (EBV). On the history taking, the questions should be arrange to explore several symptoms that may appear, such as epistaxis, nasal blocking, eye problem, headache, etc. A detailed physical examination such as rhinoscopy anterior and posterior as well as otoscopy are needed to view the nasal cavity, oral cavity, nasopharynx and the eardrum in order to directly find the primary site (Balm et al, 2010; NCCN, 2018).^{9,10}

Imaging on nasopharynx and surrounding structures are very important to decides the primary site and also for the staging of the malignancy in enlargement of cervical lymph node. However, the gold standard for diagnosis of nasopharyngeal carcinoma is the biopsy nasopharynx itself.⁹

Fine needle aspiration biopsy

The cytology examination from the cervical lymph node aspiration can be done to make an early diagnosis and to eliminate the such differential diagnosis of cervical lymph node. FNAB is an easy, simple and quick as well as low price procedure which can be done on outpatient setting. This procedure is frequently use to diagnose the thyroid mass. The equipment including the 10 ml sput, alcohol swab, object glass, hematoxylin eosin staining and microscope. The result can be obtained in 1-2 days.¹¹ The pain may occur after FNAB, however, visual analog scale (VAS) is relatively low with the mean 36 ± 16 .¹²

The sensitivity, specificity and diagnostic accuracy of FNAB in head and neck lesion (excluding thyroid) is excellent. Goret et al (2013) found in his research, the sensitivity 94,6%, specificity 97,9% and accuracy 96,7%.¹³ This result similar with research by Alam et al (2009), consecutively the found 93,3%, 94% and 95,65%.¹⁴

On the National comprehensive cancer network (NCCN) guideline version 2.2018, FNAB is one of the recommendation in nasopharyngeal carcinoma workup.¹⁰ However, the most important thing is a biopsy on the primary site with the endoscopic guided biopsy in nasopharynx.

Incisional biopsy on cervical lymph node

Neck node biopsy should be avoided although a direct effect on tumor recurrence has not been demonstrated (Balm et al, 2010).⁹ Pastor M, et al (2018), emphasized that Incisional cervical biopsy should be avoided as this procedure will negatively impact the subsequent treatment. Incisional cervical lymph node biopsy is only indicated to those who repetitive negative or non-diagnostic FNAC as well as repetitive negative imaged guided true cut biopsy on the primary tumor.¹⁵

Incisional biopsy can be done under local or general anesthesia, its defend on patient conditions including the renal and hepatic function, age and psychological status. Incisional biopsy is started with making an incision in the bigger palpable node, then goes deeper until the node is free from others tissue, so the node sample will easily to carry out. Finally, the tissue sample send to pathology laboratory to be proceeds for histopathologic examination. In Indonesia the result usually will be find in 5-7 days.¹¹

There are several effects of incisional biopsy on cervical lymph node, including scar formation which is occur in 100% cases, skin metastasis and distance metastasis are occur in 57% cases. (Adoga et al, 2009).⁸ In Indonesia, pathologic workup need about 5-7 days to be finished,

furthermore, if cervical node biopsy was done and then followed by biopsy in the primary tumor, this will take at least 2 weeks to make a definitive diagnosis. A late start of radiotherapy and or chemotherapy will reduce the survival rate. Cai et al (1983) found that 5 years survival rate of patient with nasopharyngeal cancer who received the radiotherapy and or chemotherapy within 2 weeks after diagnosis will have a better survival rate (65%) than those who start the radiotherapy and or chemotherapy more than 2 weeks (45%).¹⁶

Another research found there is no significant different between patient with and without incisional neck biopsy on the overall survival rate, loco-regional recurrence, or distance metastasis with intensity modulated radiotherapy (IMRT). They found the 4 years survival rate 88,4% and 92,3% consecutively in group with and without incisional biopsy with the p value 0,195. Loco-regional recurrence in both group consecutively 93,9% and 97,3% (p value 0,56). Distance metastasis 85,8% and 86,5% consecutively in both group with p value 0,58.

IMRT is relatively new modality to treat nasopharyngeal cancer.⁵

In Indonesia, only a few hospitals using this modality, furthermore, not all province in Indonesia have the radiotherapy unit. Hiswara (2017) report in 2017 there are 33 radiotherapy center in Indonesia. Another obstacles in Indonesia are a period to waiting time for starting the radiotherapy was more than 3 month, and also pausing time when the equipment need a repair or maintenance.¹⁷ This make the prognosis of nasopharyngeal cancer will lower than others who use IMRT and starting the treatment within 2 week as well as there is no any pausing time.

Discussion

According to several literatures above, FNAB is superior in early detection of type of lymph node on the neck. So, it can differentiate the node as an infection, benign or malignant mass with less invasive, economist and well tolerated procedure. On the other hand, incisional biopsy is superior in case of negative repetitive true cut biopsy. So, it can be as a final decision to make diagnosis in unknown origin head and neck cancer. According to the complication, FNAB has a minimal effect as a result of their simple procedure compared to incisional biopsy. The detailed comparison of these procedure as showed on table 2.

Table 2. Comparison of FNAB vs incisional biopsy

Category	FNAB	Incisional Biopsy
Procedure	Simple, unneeded the anesthesia	Complex, should use the anesthesia, sometime need a general anesthesia
Procedure impact	Minimal	Could be severe
Days to obtained the result	1-2 days	5-7 days

Indication	Early diagnosis	Repetitive negative result from true cut primary biopsy
Complication	Mild pain	Scar formation in the incision line, micrometastis, bleeding
Price	Low	higher

Although both procedures have its superiority on head and neck cancer management, physician have a duty to find out the primary site of the tumor. According to NCCN guideline, the treatment should be focused on the primary tumor, the different primary tumor has their own management guideline. Finally, the definitive primary tumor and primary histopathologic finding is the most important things on management of head and neck cancer, including nasopharyngeal cancer.

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