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THE CHARACTERISTICS OF PATIENTS WITH LYMPHADENOPATHY AT BHAKTI KARTINI HOSPITAL FOR THE 2020-2022 PERIOD

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Abstract

Lymphadenopathy refers to the abnormal enlargement, consistency, or number of lymph nodes, with etiologies ranging from self-limited infections to malignancies. Excision biopsy of an accessible peripheral lymph node remains critical for early diagnosis and effective management. This study aimed to describe the demographic, clinical, and histopathological characteristics of patients diagnosed with lymphadenopathy at Bhakti Kartini Hospital between 2020 and 2022. A retrospective cohort study reviewed patient medical records from January to August 2023. Data were analyzed descriptively, focusing on demographic profiles, imaging findings, and histopathological results. Among 113 cases, the mean age was 25.28 years, with a predominance of women (51.3%), individuals with higher education (71.7%), students (35.4%), and unmarried individuals (54.9%). Chest X-ray results were predominantly normal (92%), and the most common site of lymphadenopathy was cervical (69.9%). Histopathological examination revealed that the majority of biopsies were benign. These findings highlight that young, educated, unmarried women represent the majority of lymphadenopathy cases in this setting, with cervical lymph node involvement and routine chest imaging being common features.

Keywords: Lymphadenopathy, Biopsy, Characteristics

Introduction

The human body has about 600 lymph nodes. Spleen, tonsils, adenoids, and Peyer's patches are parts of the lymphoid tissue, and their role is to clean antigens from the extracellular fluid (Ahmad et al., 2015). Peripheral lymph nodes are those that are located deep in the subcutaneous tissue and can be palpated if any process causes them to enlarge (Sheikh et al., 2021). Lymphadenopathy is the term to describe the conditions in which lymph nodes become abnormal in size, consistency, and number (Mohseni et al., 2014).

A majority of patients with lymphadenopathy will have a benign etiology. Age is an important factor in characterizing the epidemiology of lymphadenopathy, and thus, can be divided into children and adults (Yankov, 2024). The etiology of lymphadenopathy can range from self-limited infections common to younger adults to malignancies prevalent in older adults (Ahmad et al., 2015). Different geographical areas can also have various etiologies (Chandrasekaran et al., 2018). Some African regions are prone to cervical lymphadenopathy due to tuberculosis (Johnson et al., 2018). Nonspecific reactive lymph node changes are the most common benign etiology of lymphadenopathy (Ali et al., 2022). A Dutch study also revealed that of 2556 patients who presented with unclear lymphadenopathy to their family physicians, 10% were referred for a biopsy, and only 1.1% were found to be related to malignancy (Maini et al., 2023). In research in Indonesia,

the most common medical diagnoses were tuberculosis infections (35.5%), malignant diseases (20.5%), and only 2.1% were acute cervical lymphadenitis. From the biopsy results in these patients, 35.7% were tuberculosis infections, 25% were malignancies, and 14.2% were non-specific chronic inflammation (Ika et al., 2019).

No further investigation is required in most cases, as the cause is evident on the patient's first evaluation (such as infection). The cause of peripheral lymphadenopathy often cannot be ascertained on clinical grounds alone (Mohan et al., 2017). Laboratory tests, imaging studies, and tissue biopsy are recommended when there are unexplained conditions (Frizzera et al., 2017). The size and distribution of the node can be identified more accurately with imaging than with physical examination. Ultrasound is a noninvasive method to assess lymph nodes in superficial regions like the neck (Khan et al., 2011). Ultrasound can assess the number, size, site, shape, margins, and pattern of vascularity and the internal structure of a lymph node (Ugwu et al., 2024). Computed tomography (CT) is helpful for lymphadenopathy in the thorax or abdominopelvic cavity (Avila et al., 2013). Although needle biopsy is used as the first step in the diagnostic approach to lymphomas, excisional biopsy of enlarged lymph nodes is still the gold standard procedure (Karn, 2019). Excision biopsy of the most accessible peripheral lymph node is with the possibility of early diagnosis and is a vital part of the management (Özkan et al., 2015).

Several previous studies have extensively explored the clinical patterns and causes of lymphadenopathy. Mohseni (2014) highlighted that while most lymphadenopathy cases are benign, accurate diagnosis requires a systematic approach, including excisional biopsy. Yankov (2024) emphasized the variation of etiologies based on age groups and geographic locations, noting tuberculosis and reactive lymphadenitis as dominant causes in certain regions. Research by Ali et al. (2022) in Africa and Ika et al. (2019) in Indonesia similarly pointed out tuberculosis and malignancy as significant causes identified through histopathological examination. However, existing studies often focus on broader epidemiological contexts or specific diagnostic modalities without emphasizing localized patient demographics and clinical patterns in Indonesia's urban hospital settings. The novelty of this study lies in its focus on describing the detailed demographic, radiologic, and histopathological profiles of lymphadenopathy patients at Bhakti Kartini Hospital between 2020 and 2022, offering a recent, localized insight that can inform health service strategies and early intervention efforts in similar urban clinical environments (Özkan et al., 2015).

This research was conducted to determine the characteristics of patients with lymphadenopathy at Bhakti Kartini Hospital from 2020 to 2022. The information obtained can be used as evaluation material for health services to prevent undesirable outcomes for patients with lymphadenopathy.

Research Method

Study Design

This retrospective cohort study was conducted from January 2023 to August 2023 among patients with lymphadenopathy treated at Bhakti Kartini Hospital, Bekasi. The sampling method was through the patient's medical record data and records related to the research.

The inclusion criteria were all medical records of patients with lymphadenopathy recorded in the medical records of Bhakti Kartini Hospital, Bekasi, between 1 January

2020 and 31 December 2022, with ages 1 to 60 years. Exclusion criteria for medical record data were incomplete, and patients with no biopsy results were excluded.

The research procedure was that for each sample, data were recorded in the form of register number, age at diagnosis, gender, chest X-ray result, education level, occupation, ethnicity, lymphadenopathy predilection, marital status, and biopsy result. The data analysis used in this research is univariate analysis to describe the data analysis used in this research is univariate analysis to describe.

Results And Discussion

In this study, the data collection included 113 cases of patients with lymphadenopathy who met the research inclusion and exclusion criteria. Table 1 presents the distribution of patients with lymphadenopathy at Bhakti Kartini Hospital, Bekasi, based on year.

Table 1. The distribution of patients with lymphadenopathy at Bhakti Kartini Hospital based on the year

Years	Frequency (n)	Percentage (n)
2020	37	32,7
2021	38	33,6
2022	38	33,6

Table 1 shows that the number of cases of lymphadenopathy at Bhakti Kartini Hospital each year tends to be stable, where cases of patients with lymphadenopathy experienced only a slight increase from 2020 to 2022. The number of cases of lymphadenopathy only increased by one patient from 2020, 37 patients, to 38 patients in 2020. 2021 and 2022.

Table 2 shows the characteristics of patients with lymphadenopathy at Bhakti Kartini Hospital. Based on gender, the number of lymphadenopathy patients is slightly higher in women, namely 51.3%, compared to men with 48.7%. Based on age, the average patient age was 25.2 years, with a range of 3 to 65 years. Based on education level, the number of patients with lymphadenopathy was higher among those with high education, with 71.7%, compared with those with low education, with 28.3%. Based on marital status, the number of patients with lymphadenopathy was higher among the unmarried, with 54.9%, compared with the married, with 45.1%. Based on occupation, the number of patients with lymphadenopathy is higher in students, at 35.4%, compared to non-workers and workers.

Table 2. The characteristics of patients with lymphadenopathy at Bhakti Kartini Hospital

Characteristic	Frequency (n)	Percentage (n)	Mean ± SD	Median (min-max)
Gender				
Male	55	48,7		
Female	58	51,3		
Age (Years)			25,28 ± 13,67	24 (3-65)
Education				
Low education	32	28,3		
High education	81	71,7		
Marital status				
Unmarried	62	54,9		

Married	51	45,1
Occupation		
Work	36	31,9
Non-Work	37	32,7
Student	40	35,4

Table 3. The characteristics of the medical status of patients with lymphadenopathy at Bhakti Kartini Hospital

Characteristics		Frequency (n)	Percentage (n)
Chest X-Ray	Normal	104	92
	Tuberculosis	5	4,5
	Pneumonia	4	3,5
Predilection lymphadenopathy	Colli	79	69,9
	Axillaries	14	12,4
	Inguinal	13	11,5
	Submandibular	1	0,9
	Submental	3	2,7
	Fossa Cubiti	1	0,9
	Auricularis	1	0,9
	Occipitalis	1	0,9
Biopsy Result	Tuberculosis	39	34.51
	Lymphoma	13	11.5
	Nonspecific Granuloma	21	18.58
	Reactive Lymphadenitis	16	14.15
	Acute Lymphadenitis	19	16.81
	Other causes		
	(i) Carsinoma coli	1	0.88
	(ii)Shialedinitis	1	0.88
	(iii) Non Keratid Epidermoid	1	0.88
	(iv) Pleumorfic Adenoma Parotid	1	0.88
	(v)Neurofibroma	1	0.88

Table 3 shows the medical status of patients with lymphadenopathy at Bhakti Kartini Hospital. Based on chest X-ray, most normal images are 92% compared to tuberculosis and pneumonia. Based on the predilection for lymphadenopathy, the most common location is the Colli region, with 69.9% compared to other locations.

Discussion

A lymph node may be enlarged in certain situations, for example, an immune response to an infective agent (bacteria and virus), as a result of inflammatory cells in infections involving the lymph node (lymphadenitis), due to the infiltration of neoplastic cells carried to the node by lymphatic or blood circulation (metastasis), due to localized neoplastic proliferation of lymphocytes or macrophages (lymphomas), and as a result of infiltration of macrophages filled with metabolite deposits (lipid storage diseases) (Shrestha et al., 2018).

Lymph node lesions can be seen in patients from very early to advanced age. In this study, the average age of patients was 25.28 years, which is similar to the research of Islam et al., with the majority of patients being between 15 and 30 years (Fatima et al.,

2011). Lymphadenopathy was the most common lesion in this study, with female predominance in the second decade correlated with a study by (Badge et al., 2017). From (according to Garca, 2018) found disparities in tumor necrosis factor and Interleukin-10 production between the sexes, thus suggesting that these disparities may play a role in susceptibility to lymphadenitis (Garca et al., 2013). Other factors determining differences between the sexes include CD4+ lymphocyte counts and endocrine, hormonal, socio-economic, and cultural factors. Socially, in developing countries, women often have low socioeconomic and nutritional status, which can affect the immune response to disease. Others state that women are more conscious of brand appearance and visit health facilities earlier, while men ignore their disease until it is in a more advanced stage (Chairani, 2020).

In this study, most patients with lymphadenopathy had high education, similar to Renzy et al.'s research, with the most significant number of patients with lymphadenopathy at high school and university education levels. In this study, most patients with lymphadenopathy were unmarried and students, which differs from the research of Renzi et al., with the largest number of patients with lymphadenopathy being married and workers (Renzi et al., 2016).

In this study, the most predilection for lymphadenopathy was in the cervical colli area. These results are from research by Malhotra et al., which stated that the highest number of lymphadenopathies was in the cervical area, with 71.79% ((Malhotra et al., 2017). In this study, the result of the chest X-ray was typical. This correlates well with other studies from Bhattacharyya et al., where a normal chest X-ray was found in 132 cases (72.13%) and an abnormal chest X-ray in 51 cases (27.87%) (Bhattacharyya et al., 2013).

Lymphadenopathy as a clinical manifestation of the regional or systemic disease is an excellent clue to the underlying disease. It can arise from benign or malignant causes, depending on the geographical condition and socioeconomic setup. Excisional biopsy is considered the gold standard for the diagnosis of LAP, and our hospital also uses excisional biopsy for clarification of LAP etiology (Malhotra et al., 2017).

The limitations of this study were that it was conducted retrospectively based on medical records, and no analysis of the patient's chronic disease history, the patient's economic status, or other factors that influenced the lymphadenopathy was carried out.

Conclusion

This study identified 113 cases of lymphadenopathy at Bhakti Kartini Hospital between 2020 and 2022. The majority of patients were women, had higher education levels, were unmarried students, and were predominantly of Javanese ethnicity. Most patients exhibited normal chest X-ray results, with a cervical predilection being the most common site of lymphadenopathy, and histopathological examination generally confirmed benign conditions. These findings emphasize the importance of early, careful clinical evaluation in populations matching these demographics, as they may represent a typical profile for benign lymphadenopathy presentations. Practically, the results of this study can guide clinicians in prioritizing diagnostic pathways, focusing first on non-invasive approaches such as imaging, while reserving invasive procedures like excision biopsy for atypical or persistent cases. Public health strategies could also leverage these demographic patterns to improve education and awareness programs about the signs and management of lymphadenopathy, particularly targeting younger and educated groups.

Future research should involve prospective multicenter studies to validate these patterns across different regions, explore the underlying causes of lymphadenopathy more comprehensively, and assess the impact of early detection programs. Additional studies integrating molecular and imaging advancements may also refine diagnostic accuracy and reduce the need for invasive procedures.

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