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Profile of ovarian tumor in anatomical pathology laboratory of Dr. Soetomo General Academic Hospital Surabaya period 1 January 2016 - 31 December 2020

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***Abstract*---**Ovarian malignant tumors are the fifth leading cause of death from malignant tumors and have the highest mortality rate among uterine malignant tumors in the United States. Factors associated with an increased risk of ovarian cancer include age, nulliparity, and a family history of cancer. The aim of this study was to determine the profile ovarian tumor in anatomical pathological Dr. Soetomo General Academic Hospital during 1 January 2016 – 31 December 2020. This study used a descriptive observational study with a retrospective approach. The data were presented in tables of the distribution of the number of cases, age and histopathological diagnosis. The data was obtained from the electronic medic record (EMR) of Dr. Soetomo General Academic Hospital. There were 1107 cases, the most age was 41-50 years, namely 285 cases (25.75%),

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mucinous carcinoma was the most histopathological of malignant tumor, namely 145 cases (24.75%), mucinous borderline tumour was the most histopathological of borderline tumor, namely 34 cases (85%) and endometriosis was the most histopathological of benign tumor.

Keywords---Profile, Ovarian Tumor, Age, Histopathological Diagnosis.

Introduction

Ovarian tumors are masses or abnormal tissue that forms in the ovaries and have different shapes and characteristics from the original tissue cells. This occurs due to the abnormal proliferation and differentiation of cells in the ovaries due to mutations in genes that regulate the proliferation of these cells. Ovarian tumors can be benign or malignant. Eighty percent of ovarian tumors are benign, although this varies with age. Ovarian tumors can occur in middle-aged women and women who are elderly and do not rule out occurring in children. Ovarian tumors are the most common gynecological disorders, mostly cystic lesions, with an incidence in the population ranging from 5-15%. Cases of benign ovarian tumors are the most common cases, reaching a third of gynecological cases every year (Stany&Hamilton, 2008). Ovarian tumors usually develop without symptoms so that they are only discovered during routine gynecological examinations or from radiological examinations because of other indications (Stany et al., 2011). The American Cancer Society in 2018, estimated the number of new cases of ovarian tumors to reach 22,240 cases in the United States, with a death rate of 14,070 cases (Torre et al., 2018).

Factors associated with an increased risk of ovarian cancer include age, nulliparity, and a family history of cancer. The World Health Organization (WHO) Histological Classification of ovarian tumors 2020 separates ovarian neoplasms according to the most likely tissue of origin, i.e. surface epithelium (65%), germ cells (15%), sex cord-stromal (10%), metastatic (5%) , and miscellaneous. Surface epithelial tumors are further classified by cell type (serous, mucinous, endometrioid, clear cell, Brener tumor) and atypia (benign, borderline, or malignant; malignant may be invasive or non-invasive). Most malignant tumors are surface epithelium (90%) (Moch, 2020).

The initial clinical symptoms of ovarian tumors are generally asymptomatic or in the form of mild symptoms that are not typical, such as no appetite, bloating, abdominal pain, and weight loss. On physical examination, a pelvico-abdominal mass was found, the presence of ascites, and secondary sexual sign abnormalities, which are hormonal manifestations produced by ovarian tumors. Signs of metastasis may be found, such as enlarged supraclavicular lymph nodes, hydrothorax, hepatomegaly. Several early detection methods, such as ultrasound, CT and MRI examinations, PET/CT are needed to help establish the diagnosis (Valentini et al., 2012). This retrospective study was conducted to determine the number of cases of ovarian tumor and its histological characteristics in the Anatomical Pathology Laboratory, RSUD Dr. Soetomo period January 2016 to December 2020.

Method

The research design used was descriptive observational with a retrospective approach. This study used descriptive analysis of pathological characteristics of nasopharyngeal carcinoma patients which included age and histopathological diagnosis. This study used data from histopathological examination of ovarian tumor specimens at the Anatomical Pathological of Dr. Soetomo General Academic Hospital during the period 1 January 2016 – 31 December 2020.

Discussion

In this study, during 1 January 2016 – 31 December 2018, there were 1107 cases diagnosed with ovarian tumor based on the results of histopathological examination at the Anatomical Pathological of Dr. Soetomo General Academic Hospital. The most cases were in 2019 with 296 cases followed by 2016 as many as 288 cases.

Table 1
Profile of ovarian tumor during 1 January 2016 – 31 December 2020 in Dr. Soetomo General Academic Hospital

	Total	Percent (%)
Age Group		
0-10 y.o	7	0.63
11-20 y.o	42	3.79
21-30 y.o	144	13.01
31-40 y.o	203	18.34
41-50 y.o	285	25.75
51-60 y.o	268	24.21
61-70 y.o	118	10.66
71-80 y.o	40	3.61
Histopathological Subtype		
Serous tumors	168	15.18
Mucinous tumors	211	19.06
Endometrioid tumors	141	12.74
Clear Cell tumors	60	5.42
Seromucinous tumors	21	1.90
Brenner tumors	4	0.36
Carcinosarcomas	1	0.09
Mesenchymal tumors	1	0.09
Sexcord-stromal tumors	47	4.25
Germ cell tumors	145	13.10
Tumor-like lesions	45	4.06
Metastases	5	0.45
Endometriosis	258	23.30

Based on whether the ovarian tumor is malignant or not, the classification of tumors is divided into benign, borderline and malignant. The incidence of malignant tumors in this study is the highest incidence rate with a total of 586 cases or 52.93%. Followed by the proportion of benign tumors incidence of 43.45% or 481 cases and borderline tumors of 3.61% or 40 cases. In the malignant tumor category, mucinous carcinoma was the most common type with 145 cases (24.75%) followed by endometrial carcinoma with 141 cases (24.06%). In the category of benign tumors, endometriosis is the dominant case found with the number of cases reaching 258 cases with a presentation of 53.63%, followed by mature teratoma (MT) as many as 90 cases or 18.72%. Meanwhile in the borderline category, cases of mucinous borderline carcinoma were the dominant cases as many as 34 cases or 85%.

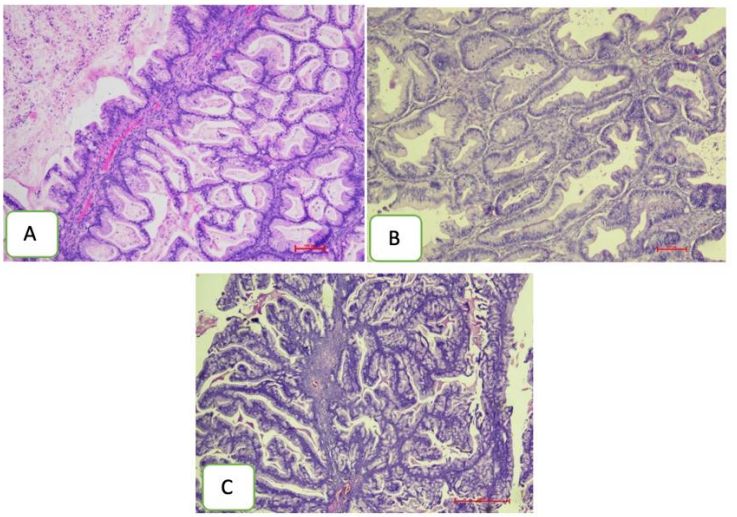

Figure 1. Mucinous carcinoma A. Mucinous carcinoma grade I. B. Mucinous carcinoma grade II. C. Mucinous carcinoma grade III

The descriptive study in this study showed that the age group with the highest incidence was the 41-50 year old group with 285 cases or 25.75%, followed by the 51-60 year age group with 268 or 24.21% cases. The lowest incidence was in the 0-10 year age group with the number of cases 7 or 0.63%.

Waldmann et al (2013) stated that older women have a higher risk of developing cancers related to the reproductive organs compared to younger women. In the case of ovarian cancer, the number of new diagnoses increases for each age group increase (Waldmann et al., 2013). Schiavone et al (2011) stated a population-based analysis showing that mucinous ovarian carcinoma is the third most common histologic variant of epithelial ovarian carcinoma. Invasive mucinous tumors tend to occur in younger women and are more often diagnosed at an early stage than serous neoplasms. Although survival was similar between mucinous tumors and early-stage serous tumors, the survival of grade III mucinous carcinoma was lower than that of high-grade serous carcinoma. The overall median survival in women with mucinous tumors was only 12 months compared

with nearly 37 months in those with nonmusinous malignancies (Schiavone et al., 2011).

In this study showed that 45% of the tumor cases studied were benign tumors. The highest proportion of cases of benign tumors was endometriosis at 51% followed by mature teratoma (MT) at 14.8%. These results are in accordance with the literature review conducted by Agostinho et al (2019) which stated that endometriosis and mature teratoma are benign ovarian tumors that are often found (Agostinho et al., 2019). Endometriosis is a common condition that affects women of reproductive age. It is thought most likely to be caused by retrograde menstruation in which endometrial stromal and epithelial fragments pass through the fallopian tubes into the pelvic cavity and become embedded in the surrounding tissue, and most commonly the ovaries by forming blood-filled cysts, known as endometriomas (Assem et al., 2018). The comorbidity of endometriosis with MT is quite widely reported. His study underscores that treatment is more complex in patients with both diseases than with only one. The diagnostic approach should also be more rigorous, especially if a patient with MT complains of dysmenorrhea, it is important to rule out the possibility of coexistence of endometriosis in these patients. Surgical management is preferable to conservative management (Chae & Chae, 2020).

Conclusion

Ovarian tumors were most common among persons aged 41-50 years. Mucinous carcinoma was the most common histopathological of malignant ovarian tumor sub type and endometriosis was the most common histopathological of benign ovarian tumor sub type.

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References

Agostinho, L., Horta, M., Salvador, J. C., & Cunha, T. M. (2019). Benign ovarian lesions with restricted diffusion. *Radiologia Brasileira*, *52*, 106–111. https://doi.org/10.1590/0100-3984.2018.0078

Assem, H., Rambau, P. F., Lee, S., Ogilvie, T., Sienko, A., Kelemen, L. E., & Köbel, M. (2018). High-grade Endometrioid Carcinoma of the Ovary. *The American Journal of Surgical Pathology*, *42*(4), 534–544. https://doi.org/10.1097/PAS.0000000000001016

Chae, H., & Chae, H. (2020). Coexistence of mature cystic teratomas and endometriosis. *Journal of Molecular and Clinical Medicine*, *3*(4), 91–96. https://doi.org/10.31083/j.jmcm.2020.04.008

Moch, H. (2020). Female genital tumours: WHO Classification of Tumours, Volume 4. *WHO Classification of Tumours*, *4*.

Schiavone, M. B., Herzog, T. J., Lewin, S. N., Deutsch, I., Sun, X., Burke, W. M.,& Wright, J. D. (2011). Natural history and outcome of mucinous carcinoma of the ovary. *American Journal of Obstetrics and Gynecology*, *205*(5), 480.e1-480.e8. https://doi.org/10.1016/j.ajog.2011.06.049

Stany, M. P., & Hamilton, C. A. (2008). Benign disorders of the ovary. *Obstetrics and Gynecology Clinics of North America*, *35*(2), 271–284.

Stany, M. P., Vathipadiekal, V., Ozbun, L., Stone, R. L., Mok, S. C., Xue, H., Kagami, T., Wang, Y., McAlpine, J. N., & Bowtell, D. (2011). Identification of novel therapeutic targets in microdissected clear cell ovarian cancers. *PloS One*, *6*(7), e21121

Torre, L. A., Trabert, B., DeSantis, C. E., Miller, K. D., Samimi, G., Runowicz, C. D., Gaudet, M. M., Jemal, A., & Siegel, R. L. (2018). Ovarian cancer statistics, 2018. *CA: A Cancer Journal for Clinicians*, *68*(4), 284–296.

Valentini, A. L., Gui, B., Miccò, M., Mingote, M. C., De Gaetano, A. M., Ninivaggi, V., & Bonomo, L. (2012). Benign and suspicious ovarian masses—MR imaging criteria for characterization: Pictorial review. *Journal of Oncology*, *2012*.

Waldmann, A., Eisemann, N., & Katalinic, A. (2013). Epidemiology of Malignant Cervical, Corpus Uteri and Ovarian Tumours – Current Data and Epidemiological Trends. *Geburtshilfe Und Frauenheilkunde*, *73*(2), 123–129. https://doi.org/10.1055/s-0032-1328266