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Profile and Histopathological Description of Gastritis Patients

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ABSTRACT

Gastritis, better known as ulcer disease, is a disorder of the abdomen that patients most often complain about and is a disease that is often found in clinics when seen from the symptoms experienced. The Indonesian Ministry of Health stated that currently, Indonesia is in fourth place as the country with the highest incidence of gastritis. Based on Basic Health Research (Riskesdas) data in 2018, gastritis is one of the 10 most common diseases in hospitalized patients in Indonesia with 30,154 cases or 4.9%. The number of gastritis cases is considered quite high because the prevalence of cases is 274,396 out of the 258,704,900 total population of Indonesia. This study aims to explore the histopathological features of the gastric mucosa and the characteristics of patients with gastritis. This study used a descriptive method with retrospective data collection from the medical record archives of the MRCCC Siloam Semanggi Hospital during the period 2022. The research sample included all m edical records of patients with gastritis who underwent an endoscopic examination. Of the 252 patients who met the inclusion criteria, 59 patients (23.4%) were diagnosed with gastritis in the age range of 41 to 50 years. More women experience gastritis than men, with 137 patients (54.4%). In terms of histopathology, 171 patients (67.9%) were diagnosed with chronic non-active gastritis. From the assessment of the corpus and antrum, it was found that 121 patients (48%) had no atrophy, 249 patients (98.8%) had no intestinal metaplasia, and 248 patients (98.4%) had no Helicobacter pylori. Therefore, it is important to carry out an early examination and endoscopic examination so that medical treatment can be carried out as soon as possible.

Keywords: Stomach, Helicobacter pylori, atrophy, intestinal metaplasia

INTRODUCTION

Gastritis is an abdominal disorder that patients often complain about and is a disease that is often found in health facilities. Gastritis can also be interpreted as a term that covers a broad spectrum of conditions, characterized by inflammation or swelling of the gastric mucosa which is generally characterized by an uncomfortable feeling in the stomach [1]

Based on a review conducted in developing countries, it was found that 50.8% of the population in developing countries suffers from gastritis, while the incidence of gastritis in developed countries is 34.7%. Gastritis is still considered a global health problem. Based on Basic Health Research (Riskesdas) data in 2018, Gastritis is one of the 10 most common diseases in hospitalized patients in Indonesia with 30,154 cases. The Ministry of Health of the Republic of Indonesia also stated that currently, Indonesia is in fourth

place as the country with the highest cases of gastritis. 2018 data from the World Health Organization (WHO) revealed that the incidence of gastritis in Indonesia was 274,396 cases [2,3,4].

Gastritis has a relatively high prevalence because gastritis can attack all ages, this can also happen because gastritis is triggered by many factors. In general, the causes of Gastritis can be divided into two groups, namely Gastritis caused by infectious agents and Gastritis caused by non-infectious agents [5].

Based on the high global and national incidence rates, as well as the many risk factors for Gastritis which can occur in various age groups, researchers are interested in examining more deeply the profile and histopathological features of Gastritis patients at the MRCCC Siloam Semanggi Hospital in 2022.

The research problem is what is the profile and histopathology of gastritis patients at MRCCC Siloam Semanggi Hospital in 2022?

LITERATURE REVIEW

Gastric Anatomy

The stomach is an important organ in the digestive system and is the widest part of the system. The stomach is located after the esophagus and is followed by the small intestine. This organ is large, muscular, and hollow, allowing it to hold food. When empty, the stomach has a shape like the letter J and consists of four main regions, namely the cardia, fundus, body, and pylorus. The cardia is the part that is connected to the esophagus and is where food first enters the stomach. The fundus, which follows the cardia, is the rounded, dome-shaped upper part of the stomach. The body, which follows the fundus, is the largest part of the stomach. Then, the pylorus, which is cone-shaped, directs food to the duodenum or upper part of the small intestine. The location of the stomach in the human body is to the left of the midline and centered in the upper abdominal area [6].

The stomach mainly consists of muscle tissue arranged in three layers, namely longitudinal, oblique, and circular, as part of its wall structure. The stomach wall consists of four main layers, namely mucosa, submucosa, muscularis externa, and serosa. The innermost layer, the mucosa, has an epithelial layer covering it, consisting mainly of gastric glands that produce gastric juice. The fundus region in particular is responsible for producing gastric juices, while the cardia region produces the protective mucus that coats the gastric mucosal walls through mucous (Foveolar) cells. This function is to protect the stomach muscles from the digestive process by gastric juices produced by the main cells (pepsin) and parietal cells [7].

The stomach has a front wall called Pars anterior and a back wall known as Pars posterior. The small curve to the right of the stomach is known as the Curvatura minor, the place where the Incisura angularis is located as a marker for the entrance to the Pars pylorica, while to the left there is a large curve known as the Curvatura major, with the discovery of the Incisura cardialis which forms a connection between the esophagus and gastric. The three main arterial branches of the Trunchus coeliacus, including A. gastrica sinistra, A. hepatica communis, and A. splenica, supply six arteries in the stomach. The supply to the curvature minor comes from A. gastrica sinistra (which comes from Trunchus coeliacus) and A. gastrica dextra (which comes from A. hepatica propria), while the curvature major receives supply from A. gastroomentalis sinistra (which comes from A. splenica) and A. gastroomentalis dextra (which is derived from A. gastroduodenalis). The fundus gets its supply from Aa. gastrici breves (which originates from A. splenica), and the posterior side receives supplies from A. gastrica posterior (which originates from A. splenica) [6,7].

Definition of Gastritis

Gastritis is a condition of inflammation or bleeding of the gastric mucosa which can be

acute and chronic. Gastritis occurs at all ages, from children, teenagers, adults to old people. Gastritis can also be defined as a collection of dyspeptic symptoms without any organic disorders in the sufferer and is a combination of several symptoms in the upper digestive tract such as a feeling of fullness in the stomach that bothers you after eating, feeling full easily, pain and burning in the epigastric area [5].

Classification of Gastritis

Generally, gastritis is divided into two types, namely acute gastritis and chronic gastritis, from this classification it is also increasingly developing into forms of gastritis which are also divided into two, namely atrophic and non-atrophic, these two things that need to be considered because the future prognosis will be related to the risk of cancer of each variant [10].

Active chronic gastritis means that in addition to chronic inflammation, there is ongoing tissue injury or damage. Another term for active gastritis is acute gastritis. In making a diagnosis, special immune cells called neutrophils are found in the mucosa. On the other hand, Inactive gastritis means no neutrophils are visible in the mucosa [10]. The most common cause of chronic inactive gastritis is stomach infection with a bacteria called Helicobacter pylori. Infections are more common in rural areas and in developing parts of the world. Chronic gastritis may also be seen in people who have previously been treated for Helicobacter pylori. Chronic gastritis can persist for months or even years after successful treatment. Other causes of chronic gastritis include nonsteroidal anti-inflammatory drugs (NSAIDs), excessive alcohol consumption, bile reflux, and autoimmune diseases [5,11].

Inactive chronic gastritis means that there is an increase in the number of special immune cells called plasma cells in the lamina propria. Pathologists describe these changes as chronic inflammation. The word inactive in diagnosis means that no special immune cells called neutrophils are seen to damage the epithelium. Neutrophils are usually visible soon after an injury begins and are a sign of ongoing damage. If left untreated, chronic inactive gastritis can damage the foveolar cells that normally cover the inner surface of the stomach. If damage persists for years, the foveolar cells will be replaced by specialized cells usually found in a part of the digestive tract called the small intestine. This change is called intestinal metaplasia [10,11].

Acute gastritis is a temporary inflammation of the stomach lining caused by pressure on the gastric mucosa, which manifests as hemorrhagic or non-hemorrhagic symptoms. This condition can develop due to various factors, while chronic gastritis can be categorized into two forms, atrophic and non-atrophic. The main cause of chronic gastritis is Helicobacter pylori infection, which usually begins with a non-atrophic morphology. Non-atrophic forms of chronic gastritis can progress to atrophic forms without appropriate treatment. The most common cause of atrophic chronic gastritis is autoimmune ulcers. The etiology is still unclear at present, autoimmune gastritis represents chronic inflammation often accompanied by severe atrophic gastritis, which usually affects the corpus, accompanied by the presence of autoantibodies against parietal cells or intrinsic factor. However, it remains unclear whether autoimmune gastritis is an isolated disorder or whether H pylori infection triggers an autoimmune response in susceptible individuals [12].

MATERIALS & METHODS

Research Design

This research uses a cross-sectional descriptive research method with retrospective data collection, namely secondary data obtained from data from the Anatomical Pathology examination of MRCCC Siloam Semanggi Hospital in 2022.

Location and time of research

This research was conducted at the Anatomical Pathology Laboratory at the

MRCCC Siloam Semanggi Hospital. This research was conducted from July 2023 to December 2023.

Research Population and Sample

Research Population

The population taken was patients diagnosed with gastritis who underwent an endoscopic examination at the MRCCC Siloam Semanggi Hospital in 2022.

Research Sample

The samples taken in this study used the total sampling method so that the number of research samples was the same as the number of medical records of patients with gastritis at the MRCCC Siloam Semanggi Hospital.

Inclusion Criteria:

1. Patients diagnosed with gastritis through gastric endoscopy examination at the MRCCC Siloam Semanggi Hospital in 2022.
2. Patients with complete anatomical pathology examination results.

Research Instruments

The research instrument is secondary data, namely the results of anatomical pathology examinations from patients diagnosed with gastritis at the MRCCC Siloam Semanggi Hospital in 2022.

Data Processing and Analysis Plan

After completing data collection, the data will be entered and processed using the SPSS (Statistical Package for The Social Science) application.

RESULT

Research result

The number of research samples that met the inclusion and exclusion criteria was 252. Of the 252 samples that were collected, the total number of those diagnosed with gastritis and those who underwent an endoscopic examination at the MRCCC Siloam Semanggi Hospital during the 2022 period was a total of 252 patients. The total data obtained meets and complies with the research requirements and criteria.

Age Frequency of Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Table 1. Age Frequency of Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Age Range	Frequency (n)	Percentage (%)
1-10 year	0	0
11-20 year	1	0.4
21-30 year	38	15.1
31-40 year	50	19.8
41-50 year	59	23.4
51-60 year	45	17.9
61-70 year	42	16.7
> 70 year	17	6.7
Total	**252**	**100.0**

Based on Table 1, it can be concluded that the highest number of patients who underwent an endoscopic examination and were diagnosed with gastritis at MRCC Siloam Semanggi Hospital in 2022 were in the 41-50 year age range, with the number of patients being 59 (23.4%). In the age range 31-40 years, with the number of patients as many as 50 (19.8%), in the age range 51-60 years with the number of patients as many as 45 (17.9%), in the age range, 61-70 years with the number of patients as many as 42 (16.7%), in the age range 21-30 years with some patients as many as 38 (15.1%), in the age range over 70 years with many patients as many as 17 (6.7%), in the age range 11- 20 years old, a 19-year-old female patient was found, for the age range 1-10 years there were no patients found in that range.

Gender Frequency of Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Table 2. Gender Frequency of Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Gender	Frequency	Percentage (%)
Male	114	45.2
Female	137	54.4
Total	**252**	**100**

From Table 2, it can be seen that the number of gastritis patients in 2022 at the MRCCC Siloam Semanggi Hospital will mostly occur in women, namely 137 patients (54.4%), while in male patients there will be 114 patients (45.2%).

Table 3. Frequency of Types of Gastritis in Patients at MRCCC Siloam Semanggi Hospital in 2022

Category	Frequency	Percentage (%)
Active Chronic Gastritis Non-Active Chronic Gastritis	81 171	32.1 67.9
Total	**252**	**100**

From Table 3, it can be seen that from the endoscopic examination and anatomical pathology examination, it was found that the most common appearance in patients with gastritis at the MRCCC Siloam, Semanggi Hospital was patients with non-active chronic gastritis with 171 findings (67.9%). The incidence of active chronic gastritis was found to be a total of 81 (32.1%).

Table 4. Frequency of Gastric Atrophy in Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Category	Frequency	Percentage (%)
Non-Atrophic	121	48
Mild atrophy	97	38.5
Moderate atrophy	34	13.5
Severe atrophy	0	0
Total	**252**	**100**

From Table 4, it can be seen that the number of Gastritis sufferers in 2022 at the MRCCC Siloam Semanggi Hospital will be 121 (48%) with non-atrophy of the gastric mucosa. There were 97 (38.5%) patients with mild atrophy, 34 (13.5%) patients with moderate atrophy, and no patients with severe atrophy.

Table 5. Frequency of Intestinal Metaplasia in Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Category	Frequency	Percentage (%)
Intestinal Non-Metaplasia	249	98.8
Intestinal Metaplasia	3	1.2
Total	**252**	**100**

From Table 5, it can be seen that the number of Gastritis patients in 2022 at the MRCCC Siloam Semanggi Hospital was 249 (98.8%) and there was no intestinal metaplasia in the patient's gastric mucosa. In 3 (1.2%) patients intestinal metaplasia was found.

Table 6. Frequency of Helicobacter pylori Gastritis Patients at MRCCC Siloam Semanggi Hospital in 2022

Category	Frequency	Percentage (%)
Helicobacter pylori (-)	249	98.4
Helicobacter pylori (+)	4	1.6
Total	**252**	**100**

From Table 6 it can be concluded that from a total of 252 gastritis patient samples taken from 2022, 248 cases (98.4%) had no Helicobacter pylori findings, while 4 cases (1.6%) had findings related to Helicobacter pylori.

DISCUSSION

Based on the results of research that has been carried out, it appears that the age range most affected in cases of gastritis is in the 41-50 year age range, with the number of patients being 59 patients (23.4%). This finding follows research conducted by Evelyn P, et al.18 in Brazil where it was found that 35.4% of patients who came for treatment to the hospital with an age range of over 40 years suffered from gastritis. Research by Feyisa ZT, et al [18] in 2021 conducted at Saint Paul Hospital Millennium Medical College also found similar results where gastritis patients with an age range of 40-50 years amounted to 146 patients out of a total of 364 patients

(40.1%). Similar results were obtained from research conducted by the Department of Anatomical Pathology, Faculty of Medicine, University of Indonesia, where the largest age range of patients suffering from gastritis was in the 41-50 year age range with the number of patients 37 (22.3%) [12].

According to the Global Burden of Disease in 2017, the incidence of gastritis occurs in adults to old age, namely at the age of 20-45 years with a prevalence of 22% of the incidence. This data follows the results of research where the prevalence aged 21-30 years was 38 patients (15.1%) and patients from the age range 31-40 years amounted to 50 patients (19.8%).18

This phenomenon may be related to the level of stress experienced because the age range and the findings obtained are still in the productive age group so there is a possibility that it is closely related to the level of stress and lifestyle which of course influences the incidence of gastritis.[8,20].

In research that has been carried out, it was found that gastritis occurred most often in female patients with a total of 137 patients (54.4%), while in male patients there were a total of 114 patients (45.2%). This finding is in line with research conducted by Smith S, et al [20] in African countries where the incidence of gastritis in women was 38% while in men it was 18%. The same results were also found in research by Feyisa ZT, et al [18] in Brazil where the number of gastritis patients was dominated by women with a percentage of 67.8%.

Women are more likely to get gastritis because the risk of stress in women is usually higher than in men, according to psychological research twice as many women suffer from depression as men. Apart from that, gastritis attacks more women because women tend to be very concerned about their weight and appearance. Therefore, women try to change their patterns by reducing the frequency and choosing the type of food they eat so that their weight does not increase, which in results in an empty stomach and inflammation [23].

From the research results, it was found that 171 patients (67.9) had non-active chronic gastritis, and 81 patients (32.1%) had active chronic gastritis. These results are not in line with the results of research conducted by Hashemi et al.24 with findings of normal gastric histopathology with a percentage of 8.7%, active chronic gastritis with a percentage of 47.1%, and non-active chronic gastritis with a percentage of 37.7%.

The most common chronic inactive gastritis is due to stomach infection with bacteria called Helicobacter pylori. This infection is more common in rural areas and in developing countries. Chronic gastritis may also be seen in people who have previously been treated for Helicobacter pylori. Chronic gastritis can persist for months or even years after successful treatment. Other causes of chronic gastritis include nonsteroidal anti-inflammatory drugs (NSAIDs), excessive alcohol consumption, and autoimmune diseases [21].

The research that has been carried out on the appearance of the gastric mucosa of Gastritis patients, it is dominated by the absence of atrophy in the stomach of 121 patients (48%). Atrophy itself is defined as the loss of glands in the gastric mucosa which can be replaced by connective tissue in the lamina propria. [21]. From the research, it was also found that 97 (38.5%) patients had mild atrophic images, 34 (13.5%) had moderate atrophy, and no patients were found with images indicating severe atrophy of the stomach.

This is in line with research conducted by the Department of Anatomical Pathology, University of Indonesia, which stated the same thing, where from a total of 332 tissue biopsies, 201 samples showed no atrophy (60.5%). Then as many as 106 cases (31.9%) showed patients with mild atrophy, 22 cases (6.62%) showed moderate atrophy, and 3 cases (0.9%) showed severe atrophy [12].

From the results of the research that has been carried out, it was found that from a total of 252 data, 249 cases (98.8%) were not found to have intestinal metaplasia, while a total of 3 cases (1.2%) of intestinal metaplasia were found. Intestinal metaplasia is a non-

cancerous change in which normal cells in the body change into other cells whose shape and characteristics are similar to cells in the small intestine. This finding follows research conducted by Nurdin W, et al.9 where it was found that from a total of 166 cases, 150 data (90.4%) stated that there was no intestinal metaplasia, and 16 cases of intestinal metaplasia (9.6%) were found [25].

From the research results, it can also be concluded that from the 252 samples, there were 248 cases (98.4%) with negative Helicobacter pylori, and 4 Helicobacter pylori findings (1.6%). This finding follows research conducted by Nurdin W, et al. [9] where out of a total of 166 cases, 162 (97.6%) found no Helicobacter pylori, and 4 cases (2.4%) found Helicobacter pylori.

This may also be because the data taken is data from the MRCCC Siloam Semanggi Hospital which is located in Jakarta so there is less chance of people being exposed to Helicobacter pylori infection because sanitation in urban areas is better. This can also be confirmed by research conducted by the Department of Disease Sciences. In FKUI, which conducted a prospective cohort study, the prevalence of Helicobacter pylori in gastritis patients undergoing endoscopy in 5 large cities in Indonesia showed that the highest data was in Jogjakarta (30.6%) and the lowest in Jakarta (8%) [26].

CONCLUSION

The conclusions obtained from the results of research conducted on gastritis patients at the MRCCC Siloam Semanggi Hospital in 2022 are as follows:

1. Based on data collected from archived medical records of patients diagnosed with gastritis at the MRCCC Siloam Semanggi Hospital during 2022, the total patient population that meets the research criteria is 252 patients diagnosed with gastritis.
2. The frequency distribution of gastritis sufferers shows that the age group with the largest number is in the 41-50 year age range (23.4%).
3. The frequency distribution of Gastritis patients based on gender shows that the highest number of Gastritis patients are in the female group (54.4%).
4. The frequency distribution of atrophic and non-atrophic histopathological features in Gastritis patients is mostly non-atrophic (48%).
5. Frequency distribution of histopathological features of intestinal metaplasia and non-intestinal metaplasia in gastritis patients. Most gastritis patients are non-intestinal metaplasia (98.8%).
6. Frequency distribution of Helicobacter pylori histopathological features in Gastritis patients, the most common being no Helicobacter pylori findings (98.4%).
7. Frequency distribution of types of gastritis based on patients. Most gastritis is chronic non-active gastritis (67.9%).

Declaration by Authors

Ethical Approval: Approved

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