MARKOWIAK, Szymon, WARDĘSZKIEWICZ, Marta, JABŁOŃSKA, Wiktoria, KASPRZAK, Amelia, ŚWIERCZ, Maciej, TRUCHTA, Monika, MAŃKOWSKA, Aleksandra, KOLANO, Agata and PEJAS, Anna. Menetrier's disease - press review and summary of current knowledge. Journal of Education, Health and Sport. 2024;51:64-75. eISSN 2391-8306.
https://dx.doi.org/10.12775/JEHS.2024.51.005
https://apcz.umk.pl/JEHS/article/view/47729
https://zenodo.org/records/10464385

The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 05.01.2024 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical culture sciences (Field of medical and health sciences); Health Sciences (Field of medical and health sciences).
Punkty Ministerialne z 2019 - aktualny rok 40 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 05.01.2024 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).

The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 16.11.2023. Revised: 31.12.2023. Accepted: 06.01.2024. Published: 06.01.2024.

Menetrier's disease - press review and summary of current knowledge

Szymon Markowiak

Norbert Barlicki Memorial Teaching Hospital No. 1 of the Medical University of Lodz located at 22 Kopcińskiego St., 90-153 Lodz

ORCID 0009-0006-7677-6739

https://orcid.org/0009-0006-7677-6739

E-mail: markowiakszymon@gmail.com

Marta Wardęszkiewicz

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz – Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0001-6415-5963

https://orcid.org/0009-0001-6415-5963

E-mail: marta.wardeszkiewicz@gmail.com

Wiktoria Jabłońska

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz – Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0006-2659-5649

https://orcid.org/0009-0006-2659-5649

E-mail: wijablonska@gmail.com

Amelia Kasprzak

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz – Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0008-2123-1314

https://orcid.org/0009-0008-2123-1314

E-mail: amelia.k.kasprzak@gmail.com

Maciej Świercz

Karol Jonscher Municipal Medical Center located at 14 Milionowa St., 93-113 Lodz

ORCID 0009-0008-6676-6988

https://orcid.org/0009-0008-6676-6988

E-mail: maciej.swiercz7@gmail.com

Monika Truchta

Central Teaching Hospital of the Medical University of Lodz located at ul. Pomorska 251, 92-213 Lodz

ORCID 0009-0000-8177-9164

https://orcid.org/0009-0000-8177-9164

E-mail: monikatruchta@gmail.com

Aleksandra Mańkowska

Central Teaching Hospital of the Medical University of Lodz located at ul. Pomorska 251, 92-213 Lodz

ORCID 0009-0009-3926-4920

https://orcid.org/0009-0009-3926-4920

E-mail: mankowskaa96@gmail.com

Agata Kolano

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz – Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0003-6418-2130

https://orcid.org/0009-0003-6418-2130

E-mail: agathe.kolano@gmail.com

Anna Pejas

Independent Public Healthcare Center in Mlawa located at 1 A. Dobrskiej St., 06-500 Mlawa.

ORCID 0009-0008-1469-4994

https://orcid.org/0009-0008-1469-4994

E-mail: annapejas@gmail.com

ABSTRACT

Introduction

Menetrier's Disease is a rare and mysterious stomach disorder characterised by giant gastric folds, excessive mucus production, and protein loss. This comprehensive research article examines Menetrier's Disease, focusing on its clinical features, diagnosis, and available

treatment options. The article aims to provide a complete understanding of Menetrier's Disease, fill the knowledge gap, and encourage improved clinical management.

Description of the State of Knowledge

Menetrier's Disease is a rare condition, and its cause is still unknown, though it may be linked to previous viral and bacterial infections and increased expression of transforming growth factor-alpha (TGF-α). Diagnosis can be established by endoscopic examination and histological analysis of material from a full-thickness mucosal biopsy. Treatment options are limited and concentrated on symptom relief, while the outcome of the therapy may vary.

Summary

Menetrier's Disease presents significant difficulties in both diagnosis and treatment. This review outlines the clinical features, classification, diagnostic approaches, available treatment options, and prognosis for healthcare professionals and researchers seeking to understand this disease better. Better understanding of Menetrier's Disease is crucial to improve patient care and explore new, potential therapeutic avenues.

Keywords

Menetrier's Disease; gastric disorder; protein loss; hypoproteinemic hypertrophic gastropathy; giant hypertrophic gastritis.

INTRODUCTION

Menetrier's Disease is a rare gastric disorder characterized by distinctive features such as giant folds in the stomach lining, excessive mucus production, and little to no acid production. The condition also results in protein loss through the gastrointestinal tract, leading to hypoalbuminemia. Menetrier's Disease is also known as hypoproteinemic hypertrophic

gastropathy and giant hypertrophic gastritis. First identified by Pierre Eugène Ménétrier in 1888, Menetrier's Disease continues to pique the interest of clinicians and researchers due to its rare prevalence and not completely known etiology. The purpose of this review is to explore the disease, including its clinical characteristics, classification, diagnostic criteria, treatment approaches, and prognosis [1].

Menetrier's disease is mainly observed in middle-aged men between the ages of 30 and 60. While it is rare in women and children, it can be found in children under the age of 10. The etiology and pathogenesis of this disease are still not fully understood. Menetrier's primarily affects the body and fundus of the stomach, sparing the antrum (there have been a few cases with involvement of the antrum) [2,3].

EPIDEMIOLOGY

Menetrier's disease is a rare condition with an incidence rate of less than one per 200,000 in the general population. It is prevalent in men aged between 30 and 60 years, with a peak around 55 years. Additionally, the disease can affect children under the age of 10,but is rare in older children and women [2,4].

ETIOLOGY

The etiology of this condition remains incompletely understood. The prevailing theory is that the disease is caused by an overexpression of the transforming growth factor (TGF-α) in the superficial gastric epithelium [5].

However, previous cytomegalovirus infection is believed to exert considerable influence over its incidence rate among children, whereas H. pylori infection is thought to play a major role among adults [6,7,8].

Some studies also suggest that the disease has a genetic component [9].

HISTOPATHOLOGY

The main feature of Menetrier's Disease is the growth of foveolar hyperplasia, often leading to the thickening of the mucosa by 1 centimeter or more. This growth creates a unique corkscrew-like appearance in the foveolar epithelium, while the main linear structure remains unaffected. The oxyntic glands are atrophic with a decrease or lack of parietal cells, and

lower-level glands may exhibit cystic dilation. A varied level of chronic inflammatory cells infiltration, accompanied by intermittent eosinophils, can be observed in the lamina propria. Notably, vertical strands of smooth muscle are discernible throughout the lamina propria [10].

SYMPTOMS

Menetrier's Disease is associated with a range of symptoms, such as epigastric pain (65%), weakness (60%), rapid weight loss (45%), nausea, and vomiting (38%). Diarrhea, anorexia, and gastrointestinal bleeding may also occur. Over time, a set of symptoms caused by hypoalbuminemia may develop, including ascites, pleural and pericardial effusion [1].

Menetrier's Disease can cause very rare symptoms like pyloroduodenojejunal intussusception, recurrent unprovoked venous thrombosis [11,12].

DIAGNOSIS

The diagnosis can be made based on the distinct changes observed endoscopy, full-thickness mucosal biopsy and laboratory tests.

1. Endoscopy and gastric X-ray after administration of barium contrast

Endoscopy and radiographs reveal marked bilaterally symmetric expansion of the gastric mucosal folds, which measure over 1 centimeter thick. The contrast may be diluted due to excessive mucus extraction [13,14].

2. Histology biopsy

The characteristic changes at the cellular level mentioned in the previous paragraphs are visible in the biopsy [14].

3. Laboratory tests

Blood count and iron levels - we are looking for features of chronic bleeding, iron deficiency and decreased white blood cell count.

In addition, we can expect increased hydrochloric acid secretion (there may also be normal secretion levels) and increased gastrin, decreased globulin and albumin levels.

We should also perform H. pylori test and, in children, a serological test for cytomegalovirus antibodies [2,10].

DIFFERENTIAL DIAGNOSIS

We differentiate the disease from other causes of biliary fold enlargement.

1. Chronic gastritis
   Depending on the cause, e.g. a positive test for H. pylori or a characteristic lymphocytic infiltrate on biopsy.
2. Gastric cancer, lymphoma or non-malignant gastric cancer
   The diagnosis is determined by the biopsy image.
3. Zollinger-Ellison syndrome
   This condition is associated with the abnormal release of gastrin with tumors located in either the duodenum or pancreas. Excessive secretion of gastric acid results in the formation of peptic ulcers in the gastrointestinal tract. Histopathological examination indicates the overgrowth of parietal cells.

TREATMENT

In certain patients, the elimination of H. pylori has led to the reversal of lesions and complete recovery. The situation is analogous for individuals with CMV infection, where administering gancyclovir may result in improvement [2,15].

Supportive therapy involving a high-protein diet and administering PPIs or H2 blockers is recommended.

Octreotide has the potential to affect the TGF-α-EGFR pathway, which can be held liable for the proliferation of gastric mucosa [2,16].

Cetuximab seems to be a highly effective remedy for Menetrier's Disease. The medication attaches to the EGF receptor, which diminishes the formation of TGF-α. Its consumption has prevented gastrectomy and improved patient’s quality of life [2,16].

Surgical treatment is an option for selected cases of Menetrier's disease, specifically for patients experiencing intractable pain, symptomatic and remarkable hypoalbuminemia, chronic hemorrhage, obstruction of the gastrointestinal tract, and when gastric cancer cannot be ruled out. Total gastrectomy is the preferred method over partial gastrectomy [17,18,19].

PROGNOSIS

In pediatric cases, the disease is self-limiting or resolves following the successful treatment of cytomegalovirus infection [20].

In adults, the disease is progressive. Our goal is to impede the proliferative process and improve patients' quality of life. There have also been cases of complete cure after eradicating H. pylori.

Patients with Menetrier's disease are at higher risk of developing gastric cancer, thus we suggest routine endoscopic examinations [21].

Statement of the authors' contribution

Conceptualization: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

Methodology: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

Software: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

check: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

formal analysis: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

investigation: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

resources, data curation: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

writing - rough preparation: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

writing - review and editing: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

visualization: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

supervision: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

project administration: Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Aleksandra Mańkowska, Monika Truchta, Agata Kolano, Anna Pejas

All authors have read and agreed with the published version of the manuscript.

Funding Statement

The study did not receive special funding.

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Conflict of Interest Statement

No conflict of interest.

SOURCES

[1] Huh WJ, Coffey RJ, Washington MK. Ménétrier's Disease: Its Mimickers and Pathogenesis. J Pathol Transl Med. 2016 Jan;50(1):10-6. doi: 10.4132/jptm.2015.09.15. Epub 2015 Dec 18. PMID: 26689786; PMCID: PMC4734964.

[2] Dąbrowski A, Marlicz K „Interna Szczeklika" s. 1065, Kraków 2023

[3] Wang HH, Zhao CC, Wang XL, Cheng ZN, Xie ZY. Menetrier's disease and differential diagnosis: A case report. World J Clin Cases. 2021 Aug 16;9(23):6943-6949. doi: 10.12998/wjcc.v9.i23.6943. PMID: 34447846; PMCID: PMC8362536.

[4] Gore M, Bansal K, Jadhav N. Menetrier Disease. 2023 Jun 25. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 33085301.2023 Jun 25.

[5] Nalle SC, Turner JR. Menetrier's disease therapy: rebooting mucosal signaling. Sci Transl Med. 2009 Nov 25;1(8):8ps10. doi: 10.1126/scitranslmed.3000438. PMID: 20368184.

[6] Fernández Caamaño B, Ramos Boluda E, Martínez-Ojinaga Nodal E, Molina Arias M, Sarría Osés J, Prieto Bozano G. Enfermedad de Ménétrier asociada a infección por citomegalovirus [Ménétrieŕs disease associated with cytomegalovirus infection]. An Pediatr (Barc). 2015 Jan;82(1):e113-6. Spanish. doi: 10.1016/j.anpedi.2014.02.019. Epub 2014 Mar 22. PMID: 24666786.

[7] Di Nardo G, Oliva S, Aloi M, Ferrari F, Frediani S, Marcheggiano A, Cucchiara S. A pediatric non-protein losing Menetrier's disease successfully treated with octreotide long acting release. World J Gastroenterol. 2012 Jun 7;18(21):2727-9. doi: 10.3748/wjg.v18.i21.2727. PMID: 22690084; PMCID: PMC3370012.

[8] Hong J, Lee S, Shon Y. Ménétrier's Disease as a Gastrointestinal Manifestation of Active Cytomegalovirus Infection in a 22-Month-Old Boy: A Case Report with a Review of the Literature of Korean Pediatric Cases. Clin Endosc. 2018 Jan;51(1):89-94. doi: 10.5946/ce.2017.038. Epub 2017 Jun 13. PMID: 28607327; PMCID: PMC5806914.

[9] Burmester JK, Bell LN, Cross D, Meyer P, Yale SH. A SMAD4 mutation indicative of juvenile polyposis syndrome in a family previously diagnosed with Menetrier's disease. Dig Liver Dis. 2016 Oct;48(10):1255-9. doi: 10.1016/j.dld.2016.06.010. Epub 2016 Jun 17. PMID: 27375208.

[10] Lambrecht NW. Ménétrier's disease of the stomach: a clinical challenge. Curr Gastroenterol Rep. 2011 Dec;13(6):513-7. doi: 10.1007/s11894-011-0222-8. PMID: 21931998.

[11] Jain S, Haydel MJ. Child Intussusception. 2023 Apr 10. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 28613732.

[12] Greenblatt HK, Nguyen BK. Ménétrier's disease presenting as recurrent unprovoked venous thrombosis: a case report. J Med Case Rep. 2019 Jan 17;13(1):14. doi: 10.1186/s13256-018-1952-0. PMID: 30651128; PMCID: PMC6335789.

[13] Hayatbakhsh Abbasi MM, Moqaddam SD, Javadi A, Safavi M. A Rare Presentation of Ménétrier's Disease as Gastroduodenal Intussusception. Middle East J Dig Dis. 2013 Jan;5(1):52-5. PMID: 24829671; PMCID: PMC3990136.

[14] Zhang J, Wang Y, Liu H, Xiao Y, Zhang T. Ménétrier's disease in childhood: a case report from China. BMC Pediatr. 2020 Mar 6;20(1):110. doi: 10.1186/s12887-020-2005-6. PMID: 32138711; PMCID: PMC7059724.

[15] Hoffer V, Finkelstein Y, Balter J, Feinmesser M, Garty BZ. Ganciclovir treatment in Ménétrier's disease. Acta Paediatr. 2003 Aug;92(8):983-5. PMID: 12948079.

[16] Nunes G, Barosa R, Patita M, Pinto-Marques P, Gonçalves D, Fonseca C, Alves de Matos A, Fonseca J. Ménétrier's disease : a case of successful treatment using long-acting octreotide. Acta Gastroenterol Belg. 2019 Jul-Sep;82(3):429-432. PMID: 31566332.

[17] Parianos C, Aggeli C, Sourla A, Zografos GN. Total gastrectomy for the treatment of Menetrier's disease persistent to medical therapy: A case report. Int J Surg Case Rep. 2020;73:95-99. doi: 10.1016/j.ijscr.2020.06.033. Epub 2020 Jun 30. PMID: 32653837; PMCID: PMC7355377.

[18] Rodríguez Gonzalez O, José R, Génesis J, Luis M, Liumariel V, Raquel F, Alexis S. Robot-assisted laparoscopic gastrectomy for Menetrier's disease. J Robot Surg. 2015 Sep;9(3):257-61. doi: 10.1007/s11701-015-0512-5. Epub 2015 May 10. PMID: 26531207.

[19] Azer M, Sultan A, Zalata K, Abd El-Haleem I, Hassan A, El-Ebeidy G. A case of Menetrier's disease without Helicobacter pylori or hypoalbuminemia. Int J Surg Case Rep. 2015;17:58-60. doi: 10.1016/j.ijscr.2015.10.025. Epub 2015 Oct 27. PMID: 26551554; PMCID: PMC4701817.

[20] Krikilion J, Levy EI, Vandenplas Y. Diagnosis and Management of Ménétrier Disease in Children: A Case Series Review. Pediatr Gastroenterol Hepatol Nutr. 2021 Jan;24(1):109-117. doi: 10.5223/pghn.2021.24.1.109. Epub 2021 Jan 8. PMID: 33505900; PMCID: PMC7813571.

[21] Almazar AE, Penfield JD, Saito YA, Talley NJ. Survival Times of Patients With Menetrier's Disease and Risk of Gastric Cancer. Clin Gastroenterol Hepatol. 2021 Apr;19(4):707-712. doi: 10.1016/j.cgh.2020.03.017. Epub 2020 Mar 14. PMID: 32184187.