

Complications after drainage of walled-off necrosis with lumen-apposing stents

Author: Manisha Nanda Kumar

Supervisor: doc. MUDr. Lumír Kunovský, Ph.D

2nd Department of Internal Medicine – Gastroenterology and Geriatrics, Faculty of Medicine and Dentistry, Palacký University and University Hospital Olomouc



Introduction

Walled-off necrosis (WON) Figure 1 refers to encapsulated, heterogeneous non-liquefied pancreatic material that occur often as a late complication of acute pancreatitis. WON may be **symptomatic** with abdominal pain, early satiety, fever, jaundice or gastric outlet obstruction or may be **asymptomatic**. In cases where WON drainage is indicated, **transgastric** or **transduodenal endoscopic approach** utilising ultrasound guidance to place **lumen apposing metal stents (LAMS) Figure 2 and Figure 3** is usually first-line therapy.

Aims

The aim of this study is to **identify** the potential **risk factors** and occurrence of **bleeding** in a prospectively collected cohort of patients, who were observed within a **4 week period** of their LAMS placement. This study includes patients that were treated at University Hospital Olomouc between **2018 and 2024**.

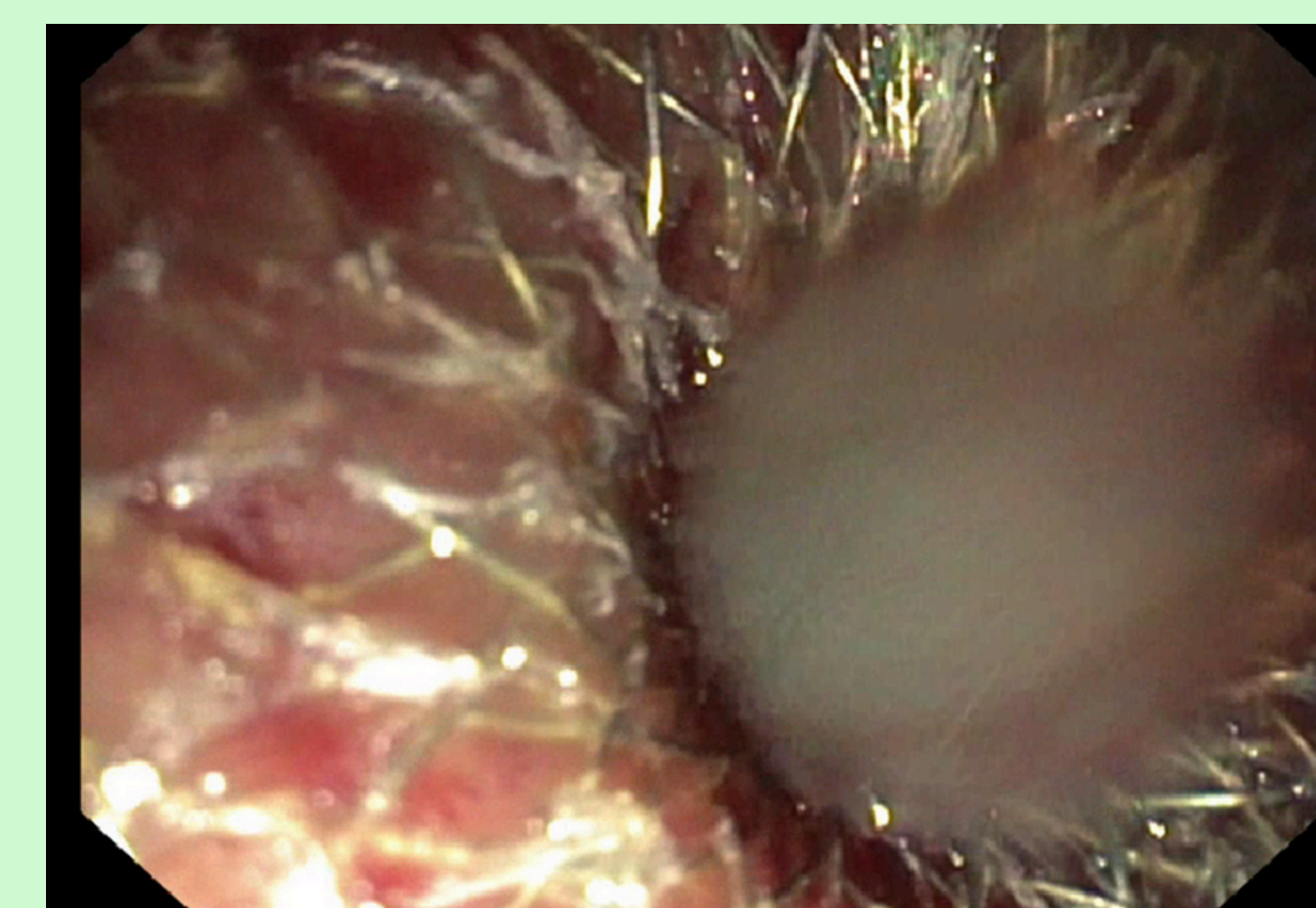
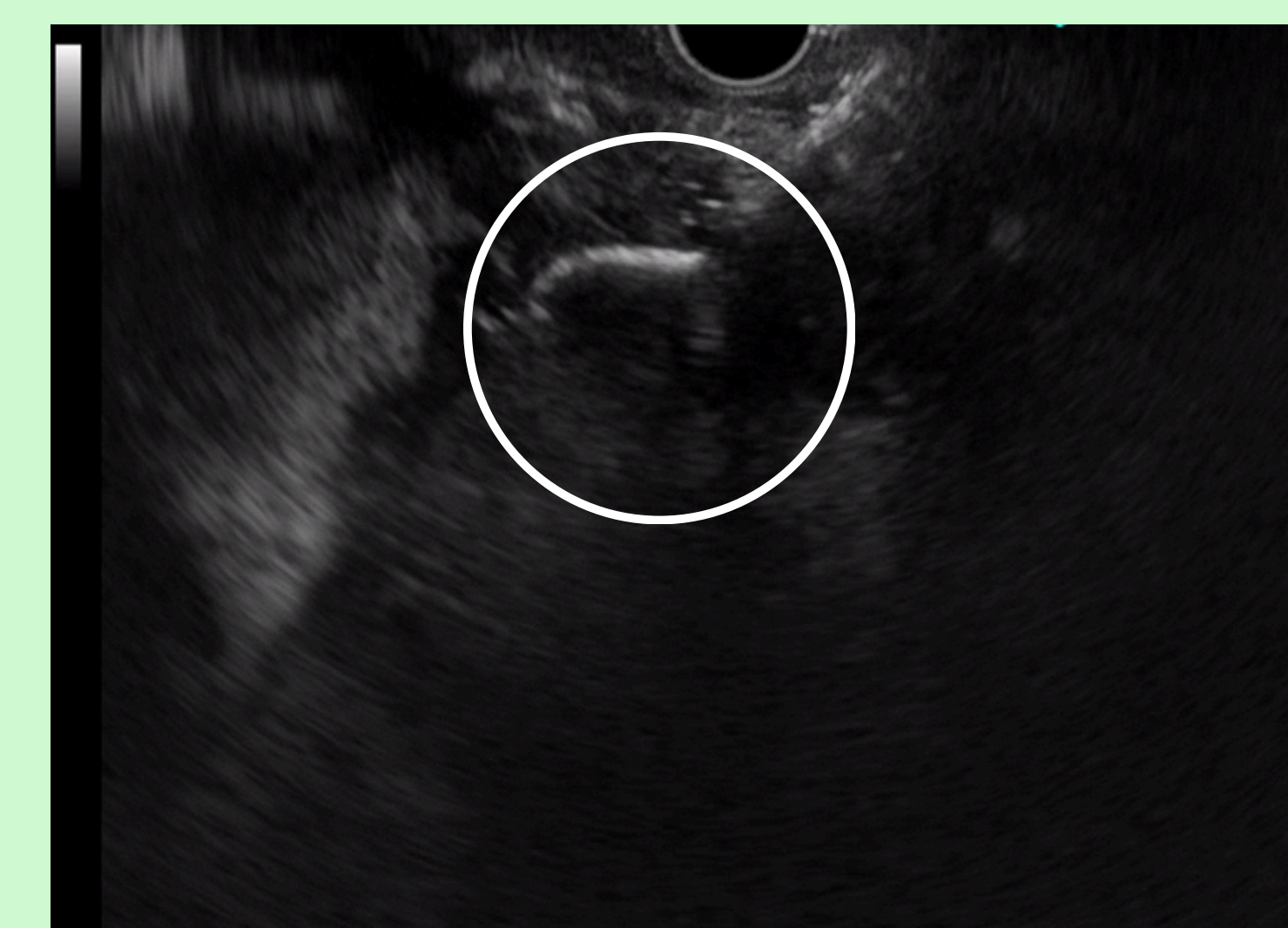
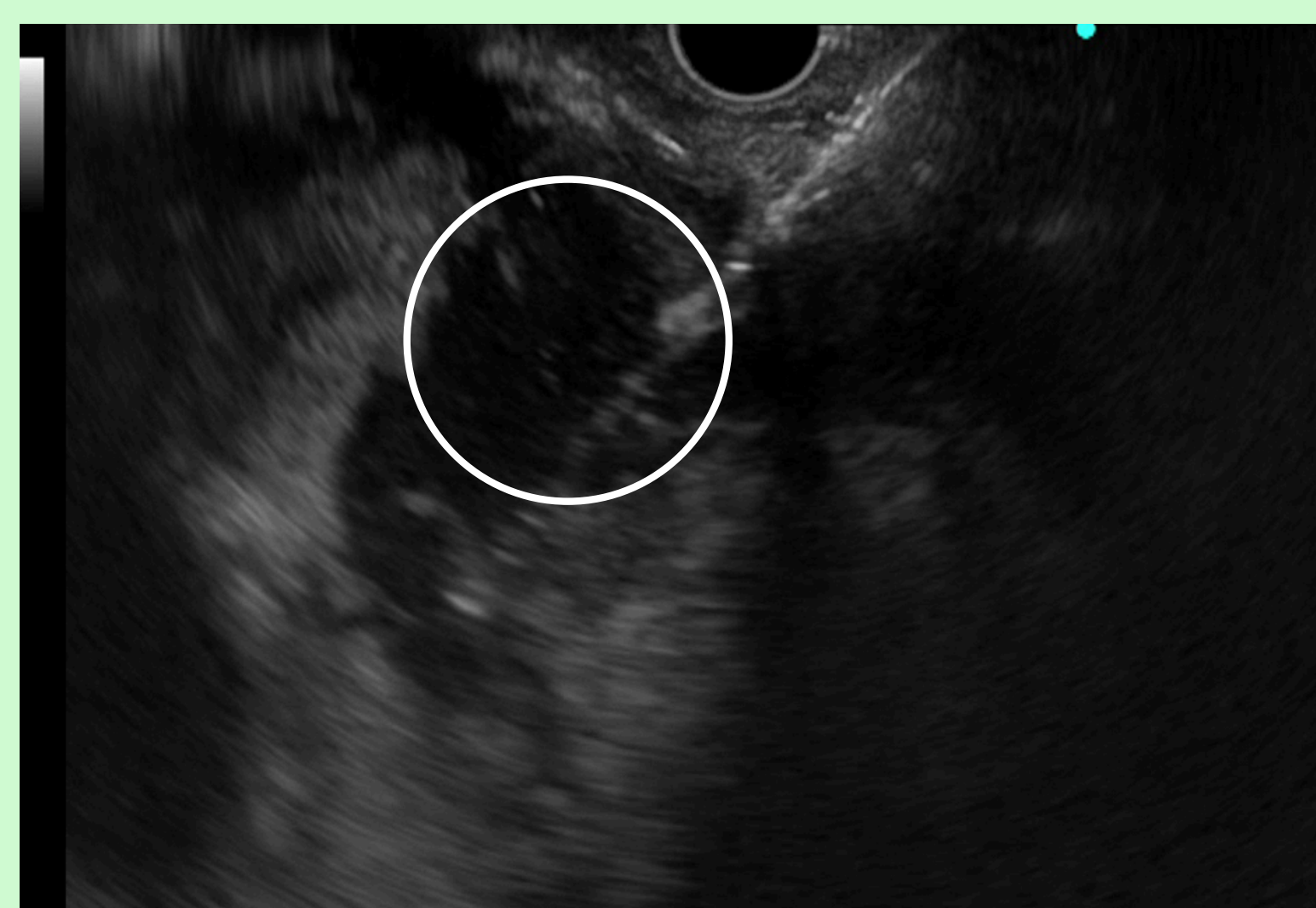


Figure 1 Beginning of LAMS placement US image - catheter is placed into WON

Figure 2 Opening the distal flange of the stent US image

Figure 3 End of procedure, endoscopic view from stomach, pus and debris is coming out from WON

Methods

In this **monocentric retrospective** study, 128 patients treated at University Hospital Olomouc were monitored and documented for complications. Bleeding episodes occurring within a **4-week period until LAMS removal** were recorded. A multivariate analysis of multiple potential risk factors was conducted, and statistical analysis was performed using **IBM SPSS software**.

The variables that were researched include:

1. **Co-morbidities** such as obesity, diabetes mellitus (DM), portal hypertension, hypertension, chronic pancreatitis and liver cirrhosis
2. **Clinical severity** of pancreatitis preceding the onset of WON
3. **Type** and **size** of stent
4. **Quantitative Necrosis Index (QNI)** Classification of WON (Q = abdominal quadrant distribution, N = % of necrosis of WON, I = infection ("I"), denoted as positive blood culture of WON)

Results

- A total of **128 patients**, 84 men (65.6%) and 44 women (34.4%).
- Mean age of patients (\pm SD): **53.9 \pm 14.5 years**, min-max 22-83 years
- Bleeding occurred in **10 cases (7.4%)**. The need for ICU was in **40 cases (29.4%)**
- **ICU Admission:** Occurred in 29.4% of cases, but was not significantly different between groups.
- Among the bleeding, **2 cases** required surgical intervention, **1 died** and **8 cases** were managed with endoscopic, radiological or conservative therapy.
- The results show that there is **no statistically significant relationship** between the **incidence of bleeding** and the **potential risk factors** considered.

Potential Risk Factors	Without bleeding (n=126)	Bleeding (n=10)	p-value
Clinical Severity	44%	60%	0.669
Max Q Score	25%	25%	1
N Score	86%	88%	1
I Score	13%	0%	0.359
Stent Type: Hotaxios	71%	80%	1
Stent size: 15x10mm	54%	50%	1
Co-morbidities	68%	50%	0.298

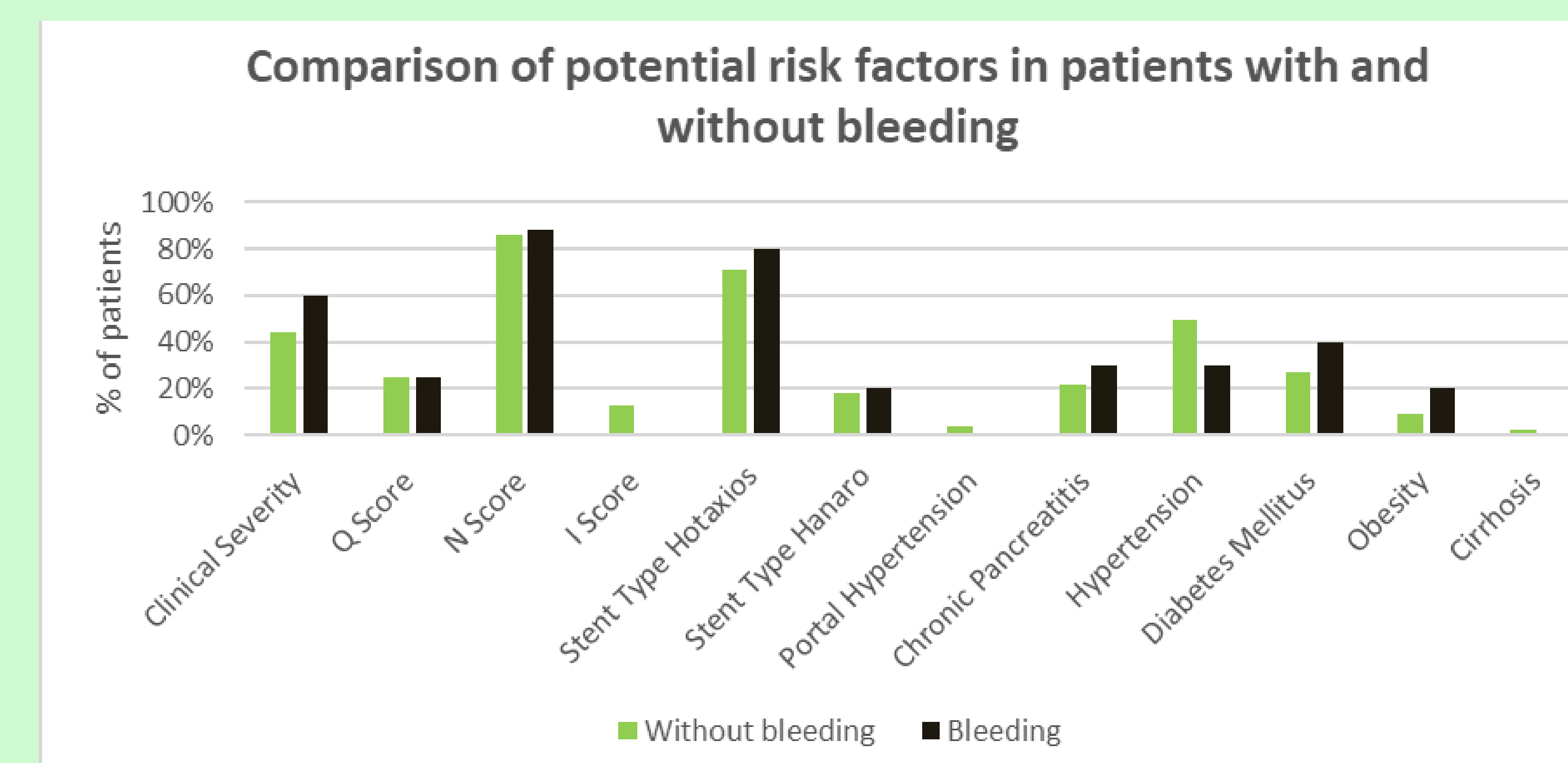


Figure 5 Bar chart showing comparison of risk factors in patients with and without bleeding

Figure 4 Demographic data table of results

References:

- **Endoscopic and US images obtained from 2nd Department of Internal Medicine**
- <https://www.sciencedirect.com/science/article/abs/pii/S001651072202017X>
- <https://pmc.ncbi.nlm.nih.gov/articles/PMC9932860/>

Conclusion

The results suggest that the risk of bleeding is **relatively low** in patients, even in the presence of potential risk factors. Though the results indicated that there is no statistical significance between the risk of bleeding complication and potential risk factors researched, it has exposed the need for a larger population retrospective study. Additional research is warranted to further **investigate** and **confirm the potential risk factors**, ensuring a more comprehensive understanding of their impact and implications.