

Diagnosis of Barrett's esophagus in University Hospital Centre Zagreb between 2012 and 2017

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Research article

Keywords: Barrett's oesophagus, epidemiology, endoscopy, dysplasia, RFA

Posted Date: August 14th, 2019

DOI: <https://doi.org/10.21203/rs.2.12788/v1>

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Abstract

AIM To evaluate epidemiology and demographic data of patients diagnosed with Barrett's esophagus in University Hospital Centre Zagreb between January 2012 and December 2017. **MATERIALS AND METHODS** In a 6 year period, upper GI endoscopy was performed in 19950 patients. We have analysed endoscopy and hospital database regarding pathohistological confirmation and demographic data of patients diagnosed with Barrett's esophagus. **RESULTS** Endoscopy suspicion of esophageal metaplasia (ESEM) was made in 592 patients. Pathohistological confirmation of Barrett's esophagus was established in 163 patients (0.8%). Intestinal metaplasia without dysplasia was diagnosed in 137 patients, low grade dysplasia in 20 patients, high grade dysplasia in three and early cancer in three patients. In the group of 163 patients with confirmed Barrett's esophagus 116 (71%) were male and 47 (29%) were female with median age of 58 years. Hiatal hernia was observed during endoscopy in 92 patients (56%). Patients with high grade dysplasia and early cancer have been treated with bandEMR and then radio frequency ablation (RFA), and all the patients with confirmed low grade dysplasia have been treated with RFA. **CONCLUSION** Barrett's esophagus still has a low incidence in Croatia, even in a high volume tertiary referral Centre.

Background

Barrett's esophagus (BE) is characterised by a change of normal stratified squamous epithelium lining the esophagus to a metaplastic columnar epithelium with goblet cells. BE is a premalignant condition predisposing to esophageal adenocarcinoma (EAC)¹. Risk for EAC in patients with BE is increased 30 to 125-fold when compared with patients without intestinal metaplasia². The prevalence of BE is estimated to be 1.5% in the general population and as high as 15% in those with GERD. Other risk factors associated with BE are older age, male sex, smoking, central obesity and white ethnicity.³

Main aim of this study was to evaluate epidemiology situation and demographic data of patients with BE in University Hospital Centre Zagreb, Croatia. Demographic characteristics of the patients (age and sex), endoscopic findings of BE, presence of dysplasia, EAC and therapy strategy were documented.

Methods

We conducted a single centre retrospective and descriptive study, reviewing the medical records of patients seen in Endoscopy unit of University Hospital Centre Zagreb Croatia, that underwent upper gastrointestinal endoscopy between January 2012 and December 2017.

Materials were collected from medical databases ISSA (endoscopy database) and BIS (intra-hospital database). All patients underwent high resolution white light endoscopy, conducted by consultant gastroenterologist in our Endoscopy unit. BE was characterised as short-segment (SSBE) <3cm or long-segment (LSBE) >3cm, with Prague classification⁴. Biopsies were taken according to Seattle protocol⁵

and additional in areas suspicious for dysplasia. BE was confirmed by positive identification of histopathological reports made by pathologist, and in case of dysplasia double-blind pathology review.

In addition, signs of GERD and hiatal hernia during endoscopy were also noted.

From intrahospital database data regarding to patients age, sex, smoking, body mass index, family history and any additional medical, endoscopic or surgical treatments were registered.

Results

Total of 19950 upper gastrointestinal endoscopies were performed in given time period, with 592 (2%) had suspicion for esophageal metaplasia (ESEM). Pathohistological confirmation of BE was established in 163 patients or 0.8%. In the confirmed BE, 116 patients (71%) were men, 47 (29%) female with mean age of 58 years. Of the evaluated patients 137 (84%) did not present with dysplasia and 26 (16%) had some grade of dysplasia. Hiatal hernia was observed in 92 (56%) patients.

Out of 137 patients without dysplasia 98 (71%) were male and 39 female (21%) with mean age of 58.34 years (range 21-84 years). These patients underwent average of 2.5 endoscopies in our given time period. 78 (56%) patients had SSBE while 59 (44%) had LSBE with most common Prague classification of C1M2 and C2M4.

In group of 26 patients with dysplasia 18 (69%) were male and 8 (31%) were female with mean age of 56.9 years (range 23-75 years). These patients on average had 4.19 endoscopies. 12 (46%) had SSBE while 14 (54%) had LSBE with most common Prague classification of C1M2 and C1M3. Low grade dysplasia was seen in 20 (76%) patients, high grade dysplasia in 3 (12%) and 3 (12%) early EAC.

Patients with confirmed low grade dysplasia (seen in two consecutive endoscopies under proton pump inhibitor therapy) were treated with radio frequency ablation (RFA). All patients with high grade or EAC were treated with bandEMR and then with RFA.

Two patients with adenocarcinoma underwent surgical operation where subtotal esophagectomy with mediastinal and upper gastrointestinal lymphadenectomy was performed since EMR specimen revealed that they have T1b cancer. .

Smoking information was obtained from 97 patients with BE. 44 patients (45%) smoke or used to smoke, with average of 22.5 cigarettes per day. 9 of those patients had dysplasia. Body mass index (BMI) information was obtained in 44 patients with BE with average BMI of 27.14, ranging from 19.92 to 35.51.

Only 5 (3%) patients had positive family history for gastrointestinal carcinoma (3 gastric carcinoma and 2 colon carcinoma, without esophageal cancer history).

Discussion

According to our results, prevalence of BE in our single tertiary referral Centre is 0.8% which is lower than reported in international case series. Italian study reported a prevalence of 1.3%, which was conducted on 1033 individuals⁴, while in Canada confirmed Barrett was present in 2.4% of 1040 cases.⁶ In Sweden prevalence of BE was 1.6% from cohort of 1000 healthy individuals who were represented as general population.⁷ From study conducted in Leicester General Hospital in period of 10 years (1984-94), BE prevalence was 1.4% of all endoscopies.⁸ Also, our prevalence was lower than overall prevalence in eastern Asian countries, which had the pooled prevalence of 1.3%.⁹ Reason for lower prevalence could be that our study was conducted in only one hospital centre in small time period of six years. These findings can be related to Mexican study which was also conducted in one hospital centre. Their results showed a prevalence of 0.96% or 9.6 cases on 1000 patients.¹⁰ Similar low prevalence of 0.24% was recorded in Lebanon, which was also conducted in one hospital centre in time period of ten years.¹¹

Regarding the patients age and sex, our findings are similar to international studies. All of them have a consensus that BE is more common in male patients with mean age higher than 50 years.⁶⁻¹¹

BMI of BE patients with or without dysplasia showed that most of the patients are overweight with average BMI of 27.14. Some studies connected BMI with length of BE. BMI was significantly higher in patients with LSBE as compared to patients with SSBE¹². Same correlations were detected in our group of BE patients.

Our study showed that 16% of patients had dysplasia, which is similar to international case series. The grade of dysplasia was also the same, with higher number of low dysplasia and lower numbers of high dysplasia and adenocarcinoma.⁶⁻¹¹

It is safe to say that our standard of care of BE patients is up to date with current guidelines for BE¹. For surveillance of BE high definition endoscopy is used. In endoscopy reports extent of BE using Prague classification, description of location of any visible abnormality and location of taken biopsies are regularly reported. Biopsies are taken from all visible mucosal abnormalities and 4-quadrant random localisations.

In conclusion, according to the present study BE still has low incidence in Croatia, even in a high volume tertiary referral Centre.

Declarations

AKNOWLEDGMENTS

This work was supported by University Hospital Centre Zagreb and Croatian Gastrointestinal Society.

DISLCOSURES

We have no conflicts of interest to disclose.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1964 and later versions. Informed consent or substitute for it was obtained from all patients for being included in the study.

The author(s) declare(s) that they have no competing interests”.

References

1. Weusten B, Bisschops R, Coron E et al. Endoscopic management of Barrett's esophagus: European Society of Gastrointestinal Endoscopy (ESGE) Position Statement
2. Bhat S, Coleman HG, Yousef F et al. Risk of malignant progression in Barrett's esophagus patients: Results from a large population-based study. *J Natl Cancer Inst.* 2011; 103: 1049-57
3. Eluri S, Shaheen N. Barrett's esophagus: diagnosis and management. *Gastrointestinal endoscopy.* 2017; 889-903
4. Sharma P, Dent J, Armstrong D et al. The development and validation of an endoscopic grading system for Barrett's esophagus: the Prague C & M criteria. *Gastroenterology.* 2006;131:1392-9
5. Spechler S, Sharma P, Souza R, Inadomi J, Shaheenm N. American Gastrointestinal Association technical review on the management of Barrett's esophagus. *Gastroneterology* 2011. 140(3): e18-e13. doi:1053/j.gastro.2011.01.031
6. Zagari R.M, Fuccio L, Wallander M, et al. Gastro-oesophageal reflux symptoms, oesophagitis and Barrett's oesophagus in the general population: the Loiano-Monghidoro study. *Gut* 2008;57:1354-1359
7. Veldhuyzen van Zanten et al. The prevalence of Barrett's oesophagus in a cohort of 1040 Canadian primary care patients with uninvestigated dyspepsia undergoing prompt endoscopy. *Aliment Pharmacol Ther*;23: 595-599
8. Ronkainen J, Pertti A, Storskrubb T et al. Prevalence of Barrett's esophagus in general population: An endoscopic study. *Gastroenterology* 2005; 125:1825-1831
9. Macdonald C E, Wicks A C, Playford R J. Final results from 10 year cohort of patients undergoing surveillance for Barrett's oesophagus: observational *BMJ* 2000; 321:1252-5.
10. Shiota S, Singh S, Anshasi A, Hashem E B. The prevalence of Barrett's esophagus in Asian countries: A systematic review and Meta-analysis. *Clin Gastroenterol Hepatol* 2015;13(11): 1907-1918
11. Valvadinós-Andraca F, Bernal-Mendez AR, Barreto-Zuniga R et al. Esofago de Barrett: experiencia de 10 años en un centro de tercer nivel en Mexico. *Revista de Gastroenterología de Mexico.* 2018;83:25-20
12. Masri O, Ibrahim F, Badreddine R, Chalhoub JM, Shara Al. Prevalence of Barrett's esophagus in Lebanon. *Turk J Gastroenterol* 2015;26:214-7

13. Abdallah A, Maradey-Romero C, Lewis S, Perzynski A, Fass R. The relationship between length of Barrett's oesophagus mucosa and body mass index.
14. Desai TK, Kirshnan K, Samala N et al. The incidence of oesophageal adenocarcinoma In non-dysplastic Barrett's oesophagus: a meta-analysis. *Gut* 2012;61:970-976