



Course

Training in optical diagnosis of early colorectal cancer. Practical knowledge

Work plan



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Presentation

Training in optical diagnosis of early colorectal cancer (TOD early CRC) is a training platform created by the [Althaia](#) [GOES research group](#), with the collaboration of world-leading endoscopists.

Scientific evidence of optical diagnosis with zoom or magnification in Japanese reference centres has shown high effectiveness in predicting the histology and, therefore, selecting the indication for advanced endoscopy treatments (such as submucosal endoscopic dissection, piecemeal, endoscopic mucosal resection) and surgery.

TOD early CRC aims to improve optical diagnosis of early colorectal cancer and estimate the histology in lesions found during a colonoscopy so that, based on the colonoscopy report, the endoscopist and a multidisciplinary committee may make a treatment decision considering other patient-related and local factors.

The content of the platform is aligned with the recommendations of international guidelines such as ESGE, ASGE, and JGES. This might help homogenise and centralise advanced procedures to offer optimal treatment to each patient.

TOD early CRC. Practical knowledge complements **TOD early CRC. What you need to know**. The course comprises three online meetings with an endoscopist of the course Faculty: Sharing knowledge I, Sharing knowledge II and Training in clinical practice. Examples of each meeting with the most representative discussions are displayed in the course. Besides, participants can choose a date to participate in stream meetings in small groups and clarify any doubts.

Please, read the Work plan below to get familiar with the programme.

I hope you enjoy the course!

Ignasi Puig
Director
TOD early CRC



Executive board and Faculty

Executive board

Director:



Ignasi Puig

Althaia, Xarxa Assistencial Universitària de Manresa, Barcelona, Spain

Deputy Director:



Maria Pellisé

Hospital Clínic i Provincial de Barcelona, Barcelona, Spain

Project Manager (medical content):



João da Costa

Consorci Sanitari de Terrassa, Barcelona, Spain

Project Manager (administrative, technical and communication):



Anna Cano-Català

Althaia, Xarxa Assistencial Universitària de Manresa, Barcelona, Spain

International Coordinators:



Bu Hayee

King's College Hospital NHS Foundation Trust, London, United Kingdom



Aryn Hajji

King's College Hospital NHS Foundation Trust, London, United Kingdom



Adolfo Parra

Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom



Taku Sakamoto

University of Tsukuba Hospital, Ibaraki, Japan



Sarah McGill

The University of North Carolina at Chapel Hill, NC, USA

Faculty



Marco Bustamante

Hospital Universitari i Politècnic La Fe, Valencia, Spain



João da Costa

Consorti Sanitari de Terrassa, Barcelona, Spain



Alberto Herreros de Tejada

Hospital Universitario Puerta de Hierro, Madrid, Spain



José Carlos Marín

Hospital Universitario 12 de Octubre, Madrid, Spain



Akiko Ono

Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain



Adolfo Parra

Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom



Maria Pellisé

Hospital Clínic i Provincial de Barcelona, Barcelona, Spain



Ignasi Puig

Althaia, Xarxa Assistencial Universitària de Manresa, Barcelona, Spain



Enrique Rodríguez

Hospital Universitario Ramón y Cajal, Madrid, Spain



Marina Solano

Hospital Comarcal de Alcañiz, Teruel, Spain



Hugo Uchima

Hospital Germans Trias i Pujol, Barcelona, Spain



Objectives

General objectives

As all the courses and activities of the **TOD early CRC platform**, this programme aims to improve optical diagnosis of early colorectal cancer and estimate the histology of colorectal lesions so that, based on the colonoscopy report, the endoscopist and a multidisciplinary committee may make a treatment decision considering other patient-related and local factors. More specifically, **TOD early CRC. Practical knowledge** aims to complement **TOD early CRC. What you need to know** by means of online meetings in small groups with an endoscopist of the course Faculty to clarify doubts and highlight the key points (Sharing knowledge I and II) and one-to-one sessions to discuss findings of colorectal lesions found in the participant's clinical practice (Training in clinical practice).

Modules objectives

Module 1. Sharing knowledge I

Clarify doubts and stress key points of Modules 1-to-5 of the course **TOD early CRC. What you need to know:**

1. Decision-making in the treatment of colorectal polyps. Is there room for improvement?
2. Understanding the pathologist's perspective
3. Image-enhanced endoscopy
4. Assessment with white-light imaging
5. Dye-based chromoendoscopy with indigo carmine

Module 2. Sharing knowledge II

Clarify doubts and stress key points for Modules 6-to-10 of the **TOD early CRC** course. **What you need to know:**

6. Virtual chromoendoscopy without magnifying endoscopy
7. Virtual chromoendoscopy with magnifying endoscopy
8. Dye-based chromoendoscopy with crystal violet and magnifying endoscopy
9. Special cases and limitations
10. Summary of invasive pattern

Module 3. Training in clinical practice

Clarify doubts, stress key points and discuss main difficulties in implementing optical diagnosis in 3 lesions found in clinical practice after having received all the theoretical knowledge in a previous course.



Content

The following information is given in the headings of the platform:

- **Announcements.** This is the way the Faculty will announce any new information.
- **Work plan.**
- **Book your dates for the meetings**
- **Key steps in the optical diagnosis of early colorectal cancer.** A useful Figure that shows 5 key steps in the evaluation of lesions.

Before you start

This section contains:

- **Responsibility acceptance agreement.** A declaration stating any decisions the participants might take during or after taking this course are their own responsibility. This is a requirement for the course to be displayed.
- **Work plan.**
- **Conflicts of Interest Statement.**
- **Summaries of the course TOD early CRC. What you need to know.** In this section, the same summaries of Modules 1-to-10 of the course **TOD early CRC. What you need to know** are displayed.

Module 1. Sharing knowledge I

Covers doubts and key points of Modules 1-to-5 of the **TOD early CRC course. What you need to know.** The topics of the above mentioned modules are:

1. Decision-making in the treatment of colorectal polyps. Is there room for improvement?
2. Understanding the pathologist's perspective
3. Image-enhanced endoscopy
4. Assessment with white-light imaging
5. Dye-based chromoendoscopy with indigo carmine

Before taking this module, it is strongly recommended to finish Module 5 of the **TOD early CRC course. What you need to know.**

Recorded videos

This section contains the video of one meeting with representative discussion.

Book your date for Sharing knowledge I: Live streaming meeting

A meeting with up to 6 participants and an endoscopist of the course Faculty is held to clarify doubts and highlight the key points.



Sharing knowledge I: Live streaming meeting is a link to a calendar of available meetings where date, time, and languages (English or Spanish) can be chosen.

Sharing knowledge I is generally held one Friday or Saturday per month at 4 PM Central European Time, subject to availability*.

* Registration closes when places run out or 10 days before the meeting.

* Reservation can be cancelled at least 10 days before the meeting.

Participants will receive meeting details by email after registration is completed, 7 days and 2 days before the meeting.

Test your knowledge

A short multiple-choice test is displayed. All answers must be correct to move forward to the following module (multiple attempts are allowed).

Module 2. Sharing knowledge II

Covers doubts and key points of Modules 5-to-10 of the **course TOD early CRC. What you need to know**. The topics of the above-mentioned modules are:

6. Virtual chromoendoscopy without magnifying endoscopy
7. Virtual chromoendoscopy with magnifying endoscopy
8. Dye-based chromoendoscopy with crystal violet and magnifying endoscopy
9. Special cases and limitations
10. Summary of invasive pattern

Before taking this module, it is strongly recommended to finish Module 10 of the course **TOD early CRC. What you need to know**.

Recorded videos

This section contains the video of one meeting with representative discussion.

Book your date for Sharing knowledge II: Live streaming meeting

A meeting with up to 6 participants and an endoscopist of the course Faculty is held to clarify doubts and highlight the key points.

Sharing knowledge II: Live streaming meeting is a link to a calendar of available meetings where date, time, and languages (English or Spanish) can be chosen.

Sharing knowledge II is generally held one Friday or Saturday per month at 4 PM Central European Time, subject to availability*.

* Registration closes when places run out or 10 days before the meeting.

* Reservation can be cancelled at least 10 days before the meeting.

Participants will receive meeting details by email after registration is completed, 7 days and 2 days before the meeting.



Test your knowledge

A short multiple-choice test is displayed. All answers must be correct in order to move forward to the following module (multiple attempts are allowed).

Module 3. Training in clinical practice

In this module, participants clarify doubts, stress key points and discuss main difficulties in implementing optical diagnosis in clinical practice after having received all the theoretical knowledge in a previous course.

Evaluation of the lesion is discussed in a 30-minute one-to-one meeting with an endoscopist of the course Faculty.

Recorded videos

This section contains the videos of two meetings with representative discussions.

Lesions assessment

Participants upload **pictures or a video of 3 lesions** (Lesion 1, Lesion 2 and Lesion 3). For each lesion, the participant writes the lesion description and recommended treatment as if it were a colonoscopy report, so the images and description can be discussed in a committee or another GI consultant can explain the plan to the patient. The participant can recommend more than one option to be discussed.

It is strongly recommend ensuring that your Endoscopy Unit is equipped with catheter spray, mucolytic like Pronase (only available in limited countries like Japan) or N-acetylcysteine 10% and indigo carmine 0.4%. If you have magnifying endoscopy or dual focus, please try to get crystal violet (= gentian violet) 0.05%. Please get in touch with the Pharmacy department to obtain them before you start the modules so they are available in the Training in clinical practice phase. If you do not know the preparation protocol, provide them with the name of a hospital in your country where you know it is available. They will then be able to obtain the preparation protocol.

Book your date for Training in clinical practice: Live streaming meeting

A meeting with an endoscopist of the course Faculty is organized to clarify doubts and highlight the key points on Lesion 1, Lesion 2 and Lesion 3. The participant can invite an additional endoscopist to the meeting (participating or not in the course) to feel more comfortable or enrich the discussion (optional).

Training in clinical practice: Live streaming meeting is a link to a calendar of available meetings where date, time, and languages (English, Spanish, Portuguese or Japanese) can be chosen.

* Registration closes when places run out or 10 days before the meeting.

* Reservation can be cancelled at least 10 days before the meeting.



Participants will receive meeting details by email after registration is completed, 7 days and 2 days before the meeting.

Test your knowledge

A short multiple-choice test is displayed. All answers must be correct in order to move forward to the following Module (multiple attempts are allowed).

Calendar

This course has an estimated duration of 4 hours. User access to the content will expire 6 months after the subscription. Below is a time estimation for each module, to help participants follow their own pace of work.

Educational content	Minutes
Sharing knowledge I	120
Sharing knowledge II	120
Training in clinical practice	55

Test yourself	Minutes
Sharing knowledge I	10
Sharing knowledge II	10
Training in clinical practice	5

It is strongly recommended:

- To finish **What you need to know** modules 1 to 5 before attending Sharing knowledge I.
- To finish **What you need to know** modules 6 to 10 before attending Sharing knowledge II.
- To finish modules **What you need to know** 1 to 10 and Sharing knowledge I and II before attending Training in clinical practice.

Certification

The section contains:

- **Global feedback.** A questionnaire to provide course organisation with your feedback.
- **Certificate.** It will be available for those participants who have answered correctly 100% of the Test your knowledge questions at the end of each module (multiple attempts are allowed). This course is endorsed by Asociación Española de Gastroenterología (AEG) and Sociedad Española de Endoscopia Digestiva (SEED).

References

- Albeniz E, Pellise M, Gimeno Garcia AZ, et al. Clinical guidelines for endoscopic mucosal resection of nonpedunculated colorectal lesions. *Gastroenterol Hepatol* 2018; 41:175–190.
- Argilés G, Taberner J, Labianca R, Hochhauser D, Salazar R, Iveson T, Laurent-Puig P, Quirke P, Yoshino T, Taieb J, Martinelli E, Arnold D; ESMO Guidelines Committee. Electronic address: clinicalguidelines@esmo.org. Localised colon cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. www.trainingopticaldiagnosis.com *Ann Oncol.* 2020 Oct;31(10):1291-1305. doi: 10.1016/j.annonc.2020.06.022. Epub 2020 Jul 20. PMID: 32702383.
- Backes Y, Moss A, Reitsma JB, Siersema PD, Moons LM. Narrow Band Imaging, Magnifying Chromoendoscopy, and Gross Morphological Features for the Optical Diagnosis of T1 Colorectal Cancer and Deep Submucosal Invasion: A Systematic Review and Meta-Analysis. *Am J Gastroenterol.* 2017 Jan;112(1):54-64. doi: 10.1038/ajg.2016.403. Epub 2016 Sep 20. PMID: 27644737.
- Backes Y, Schwartz MP, Ter Borg F et al. Multicentre prospective evaluation of real-time optical diagnosis of T1 colorectal cancer in large non-pedunculated colorectal polyps using narrow band imaging (the OPTICAL study). *Gut* 2018, DOI: 10.1136/gutjnl-2017-314723.
- Beaton C, Twine CP, Williams GL, Radcliffe AG. Systematic review and meta-analysis of histopathological factors influencing the risk of lymph node metastasis in early colorectal cancer. *Colorectal Dis.* 2013 Jul;15(7):788-97. doi: 10.1111/codi.12129. PMID: 23331927.
- Bisschops R, East JE, Hassan C, Hazewinkel Y, Kamiński MF, et al. Advanced imaging for detection and differentiation of colorectal neoplasia: European Society of Gastrointestinal Endoscopy (ESGE) Guideline - Update 2019. *Endoscopy.* 2019 Dec;51(12):1155-1179. doi: 10.1055/a-1031-7657. Epub 2019 Nov 11. Erratum in: *Endoscopy.* 2019 Dec;51(12):C6. PMID: 31711241.
- Boda K, Oka S, Tanaka S, et al. Clinical outcomes of endoscopic submucosal dissection for colorectal tumors: a large multicenter retrospective study from the Hiroshima GI Endoscopy Research Group. *Gastrointest Endosc* 2018;87:714– 722.



- Bogie R.M., Veldman M.H., Snijders L.A., Winkens B., Kaltenbach T., et al. Endoscopic subtypes of colorectal laterally spreading tumors (LSTs) and the risk of submucosal invasion: A meta-analysis. *Endoscopy*. 2018;50:263–282.
- Bosch SL, Teerenstra S, de Wilt JH, Cunningham C, Nagtegaal ID. Predicting lymph node metastasis in pT1 colorectal cancer: a systematic review of risk factors providing rationale for therapy decisions. *Endoscopy*. 2013 Oct;45(10):827-34. doi: 10.1055/s-0033-1344238. Epub 2013 Jul 24. PMID: 23884793.
- Bourke MJ, Neuhaus H, Bergman JJ. Endoscopic submucosal dissection: indications and application in western endoscopy practice. *Gastroenterology* 2018; 154:1887–1900.e5.;28(47):6619-6631.
- Bronzwaer MES, Koens L, Bemelman WA, et al. Volume of surgery for benign colorectal polyps in the last 11 years. *Gastrointest Endosc* 2018;87:552–561.e1.
- Burgess NG, Hourigan LF, Zanati SA et al. Risk stratification for covert invasive cancer among patients referred for colonic endoscopic mucosal resection: a large multicenter cohort. 2017; 153: 732-742. e731.
- Bustamante-Balén M. How to avoid overtreatment of benign colorectal lesions: Rationale for an evidence-based management. *World J Gastroenterol*. 2022 Dec 21.
- Chattree A, Barbour JA, Thomas-Gibson S, et al. Report of the Association of Coloproctology of Great Britain and Ireland/British Society of Gastroenterology Colorectal Polyp Working Group: the development of a complex colorectal polyp minimum dataset. *Colorectal Dis* 2017; 19:67–75.
- Dattani M, Moran BJ. Understanding variations in the treatment of significant polyps and early colorectal cancer. *Colorectal Dis* 2019; 21(Suppl 1):57–59.
- Dattani M, Crane S, Battersby NJ, et al. Variations in the management of significant polyps and early colorectal cancer: results from a multicentre observational study of 383 patients. *Colorectal Dis* 2018; 20:1088–1096.
- Dekker E, Houwen BBSL, Puig I, Bustamante-Balén M, Coron E, et al. Curriculum for optical diagnosis training in Europe: European Society of Gastrointestinal Endoscopy (ESGE) Position Statement. *Endoscopy*. 2020 Oct;52(10):899-923. doi: 10.1055/a-1231-5123. Epub 2020 Sep 3. Erratum in: *Endoscopy*. 2020 Oct;52(10):C10. PMID: 32882737.
- Dixon MF. Gastrointestinal epithelial neoplasia: Vienna revisited. *Gut*. 2002 Jul;51(1):130-1. doi: 10.1136/gut.51.1.130. PMID: 12077106; PMCID: PMC1773259.
- Du Boulay CE, Fairbrother J, Isaacson PG. Mucosal prolapse syndrome--a unifying concept for solitary ulcer syndrome and related disorders. *J Clin Pathol*. 1983 Nov;36(11):1264-8. doi: 10.1136/jcp.36.11.1264.
- Ferlitsch M, Moss A, Hassan C, Bhandari P, Dumonceau JM, et al. Colorectal polypectomy and endoscopic mucosal resection (EMR): European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline. *Endoscopy*. 2017 Mar;49(3):270-297. doi: 10.1055/s-0043-102569.



- Fuccio L, Repici A, Hassan C, et al. Why attempt en bloc resection of nonpedunculated colorectal adenomas? A systematic review of the prevalence of superficial submucosal invasive cancer after endoscopic submucosal dissection. *Gut* 2018; 67:1464–1474.
- Hassan C, Wysocki PT, Fuccio L, Seufferlein T, Dinis-Ribeiro M, Brandão C, Regula J, Frazzoni L, Pellise M, Alfieri S, Dekker E, Jover R, Rosati G, Senore C, Spada C, Gralnek I, Dumonceau JM, van Hooft JE, van Cutsem E, Ponchon T. Endoscopic surveillance after surgical or endoscopic resection for colorectal cancer: European Society of Gastrointestinal Endoscopy (ESGE) and European Society of Digestive Oncology (ESDO) Guideline. *Endoscopy*. 2019 Mar;51(3):266- 277. doi: 10.1055/a-0831-2522. Epub 2019 Feb 5. PMID: 30722071.
- Hayashi N, Tanaka S, Hewett DG, Kaltenbach TR, Sano Y, et al. Endoscopic prediction of deep submucosal invasive carcinoma: validation of the narrow-band imaging international colorectal endoscopic (NICE) classification. *Gastrointest Endosc*. 2013 Oct;78(4):625-32. doi: 10.1016/j.gie.2013.04.185. Epub 2013 Jul 30. PMID: 23910062.
- Higurashi T, Ashikari K, Tamura S, Takatsu T, Misawa N, Yoshihara T, Ninomiya Y, Okamoto Y, Taguri M, Sakamoto T, Oka S, Nakajima A, Tanaka S, Matsuda T. Comparison of the diagnostic performance of NBI, Laser-BLI and LED-BLI: a randomized controlled noninferiority trial. *Surg Endosc*. 2022 Oct;36(10):7577- 7587. doi: 10.1007/s00464-022-09197-8. Epub 2022 Apr 11. PMID: 35411460; PMCID: PMC9485093.
- Huang SL, Tan WX, Peng Q, Zhang WH, Qing HT, Zhang Q, Wu J, Lin LD, Lu ZB, Chen Y, Qiao WG. Blue laser imaging combined with JNET (Japan NBI Expert Team) classification for pathological prediction of colorectal laterally spreading tumors. *Surg Endosc*. 2021 Oct;35(10):5430-5440. doi: 10.1007/s00464-020- 08027-z. Epub 2020 Sep 24. PMID: 32974783.
- Ikematsu H., Matsuda T., Emura F., Saito Y., Uraoka T., et al. Efficacy of capillary pattern type IIIA/IIIB by magnifying narrow band imaging for estimating depth of invasion of early colorectal neoplasms. *BMC Gastroenterol*. 2010;10:33. doi: 10.1186/1471-230X-10-33.
- Ishigaki T, Kudo SE, Miyachi H, Hayashi T, Minegishi Y, et al. Treatment policy for colonic laterally spreading tumors based on each clinicopathologic feature of 4 subtypes: actual status of pseudo-depressed type. *Gastrointest Endosc*. 2020 Nov;92(5):1083-1094.e6. doi: 10.1016/j.gie.2020.04.033.
- Ito R, Ikematsu H, Murano T, Shinmura K, Kojima M, Kumahara K, Furue Y, Sunakawa H, Minamide T, Sato D, Yamamoto Y, Takashima K, Yoda Y, Hori K, Yano T. Diagnostic ability of Japan Narrow-Band Imaging Expert Team classification for colorectal lesions by magnifying endoscopy with blue laser imaging versus narrow-band imaging. *Endosc Int Open*. 2021 Feb;9(2):E271-E277. doi: 10.1055/a-1324-3083. Epub 2021 Feb 3. PMID: 33553592; PMCID: PMC7857969.
- Iwatate M, Ikumoto T, Hattori S, Sano W, Sano Y, Fujimori T. NBI and NBI Combined with Magnifying Colonoscopy. *Diagn Ther Endosc*. 2012;2012:173269. doi:



10.1155/2012/173269. Epub 2012 Dec 9. PMID: 23304065; PMCID: PMC3523539.

- Kanao H, Tanaka S, Oka S, et al. Clinical significance of type V(I) pit pattern subclassification in determining the depth of invasion of col-orectal neoplasms. *World J Gastroenterol* 2008;14:211-217.
- Kitajima K, Fujimori T, Fujii S, Takeda J, Ohkura Y, et al. Correlations between lymph node metastasis and depth of submucosal invasion in submucosal invasive colorectal carcinoma: a Japanese collaborative study. *J Gastroenterol.* 2004 Jun;39(6):534-43. doi: 10.1007/s00535-004-1339-4. PMID: 15235870.
- Kobayashi S, Yamada M, Takamaru H, et al. Diagnostic yield of the Japan NBI Expert Team (JNET) classification for endoscopic diagnosis of superficial colorectal neoplasms in a large-scale clinical practice database. *United European Gastroenterol J* 2019; <https://doi.org/10.1177/2050640619845987>.
- Kudo S, Hirota S, Nakajima T, Hosobe S, Kusaka H, et al. Colorectal tumours and pit pattern. *J Clin Pathol.* 1994 Oct;47(10):880-5. doi: 10.1136/jcp.47.10.880. PMID: 7962600; PMCID: PMC502170.
- Kudo S, Tamura S, Nakajima T, Yamano H, Kusaka H, Watanabe H. Diagnosis of colorectal tumorous lesions by magnifying endoscopy. *Gastrointest Endosc.* 1996 Jul;44(1):8-14. doi: 10.1016/s0016-5107(96)70222-5. PMID: 8836710.
- Kudo Se, Lambert R, Allen JI, Fujii H, Fujii T, et al. Nonpolypoid neoplastic lesions of the colorectal mucosa. *Gastrointest Endosc.* 2008 Oct;68(4 Suppl):S3-47. doi: 10.1016/j.gie.2008.07.052. PMID: 18805238.
- Lee BI, Matsuda T. Estimation of invasion depth: the first key to successful colorectal ESD. *Clin Endosc* 2019; 52:100–106.
- Manabu Muto, Kenshi Yao, Yasushi Sano. *Atlas of Endoscopy with Narrow Band Imaging.* Springer, 2015.
- Matsuda T, Fujii T, Saito Y, Nakajima T, Uraoka T, et al. Efficacy of the invasive/non-invasive pattern by magnifying chromoendoscopy to estimate the depth of invasion of early colorectal neoplasms. *Am J Gastroenterol.* 2008 Nov;103(11):2700-6. doi: 10.1111/j.1572-0241.2008.02190.x. Epub 2008 Oct 3. PMID: 18853968.
- Mehta N., Abushahin A., Sadaps M., Alomari M., Vargo J., et al. Recurrence with malignancy after ednosopic resection of large colon polyps with high-grade dysplasia: Incidence and risk factors. *Surg. Endosc.* 2021;35:2500–2508. doi: 10.1007/s00464-020-07660-y.
- Motosugu Kato ST, Yutaka Saito, Manabu Muto, ed. *New Image Enhanced Endoscopy NBI/BLI atlas.* Tokyo, Japan: Nihon Medical Center, Inc, 2014.
- Nakadoi K, Tanaka S, Kanao H, Terasaki M, Takata S, et al. Management of T1 colorectal carcinoma with special reference to criteria for curative endoscopic resection. *J Gastroenterol Hepatol.* 2012 Jun;27(6):1057-62. doi: 10.1111/j.1440-1746.2011.07041.x. PMID: 22142484.
- Overwater A, Kessels K, Elias SG, et al. Endoscopic resection of high-risk T1 colorectal carcinoma prior to surgical resection has no adverse effect on longterm



outcomes. *Gut* 2018; 67:284–290.

- Peery AF, Shaheen NJ, Cools KS, et al. Morbidity and mortality after surgery for nonmalignant colorectal polyps. *Gastrointest Endosc* 2018; 87:243–250.e2.
- Pimentel-Nunes P, Libânio D, Bastiaansen BAJ, Bhandari P, Bisschops R, et al. Endoscopic submucosal dissection for superficial gastrointestinal lesions: European Society of Gastrointestinal Endoscopy (ESGE) Guideline - Update 2022. *Endoscopy*. 2022 Jun;54(6):591-622. doi: 10.1055/a-1811-7025.
- Puig I, López-Cerón M, Arnau A et al. Accuracy of the Narrow-Band Imaging International Colorectal Endoscopic Classification System in Identification of Deep Invasion in Colorectal Polyps. *Gastroenterology*. 2019 Jan;156(1):75-87. doi: 10.1053/j.gastro.2018.10.004.
- Puig I, Mármol C, Bustamante M. Endoscopic imaging techniques for detecting early colorectal cancer. *Curr Opin Gastroenterol*. 2019 Sep;35(5):432-439. doi: 10.1097/MOG.0000000000000570. PMID: 31246596.
- Raju G, Lum P, Ross W, et al. Quality of endoscopy reporting at index colonoscopy significantly impacts outcome of subsequent EMR in patients with >20 mm colon polyps. *Endosc Int Open* 2019; 7:E361–E366.
- Rex DK, Ponugoti P, Kahi C. The "valley sign" in small and diminutive adenomas: prevalence, interobserver agreement, and validation as an adenoma marker. *Gastrointest Endosc*. 2017 Mar;85(3):614-621. doi: 10.1016/j.gie.2016.10.011.
- Sakamoto T., Matsuda T., Otake Y., Nakajima T., Saito Y. Predictive factors of local recurrence after endoscopic piecemeal mucosal resection. *J. Gastroenterol*. 2012;47:635–640. doi: 10.1007/s00535-011-0524-5.
- Sakamoto T., Saito Y., Nakamura F., Abe S., Takamaru H., et al. Short-term outcomes following endoscopic submucosal dissection of large protruding colorectal neoplasms. *Endoscopy*. 2018;50:606–612. doi: 10.1055/s-0043-123578.
- Sano Y, Tanaka S, Kudo SE, Saito S, Matsuda T, et al. Narrow-band imaging (NBI) magnifying endoscopic classification of colorectal tumors proposed by the Japan NBI Expert Team. *Dig Endosc*. 2016 Jul;28(5):526-33. doi: 10.1111/den.12644. Epub 2016 Apr 20. PMID: 26927367.
- Shaukat A, Kaltenbach T, Dominitz JA, Robertson DJ, Anderson JC, Cruise M, Burke CA, Gupta S, Lieberman D, Syngal S, Rex DK. Endoscopic Recognition and Management Strategies for Malignant Colorectal Polyps: Recommendations of the US Multi-Society Task Force on Colorectal Cancer. *Gastroenterology*. 2020 Nov;159(5):1916-1934.e2. doi: 10.1053/j.gastro.2020.08.050. Epub 2020 Nov 4. PMID: 33159840.
- Schlemper RJ, Riddell RH, Kato Y, Borchard F, Cooper HS, et al. The Vienna classification of gastrointestinal epithelial neoplasia. *Gut*. 2000 Aug;47(2):251-5. doi: 10.1136/gut.47.2.251. PMID: 10896917; PMCID: PMC1728018.
- Shimoda T, Ikegami M, Fujisaki J, Matsui T, Aizawa S, Ishikawa E. Early colorectal carcinoma with special reference to its development de novo. *Cancer*. 1989 Sep



1;64(5):1138-46. doi: 10.1002/1097-0142(19890901)64:5<1138::aid-ncnr2820640529>3.0.co;2-a. PMID: 2758387.

- Sidhu M, Tate DJ, Desomer L, et al. The size, morphology, site, and access score predicts critical outcomes of endoscopic mucosal resection in the colon. *Endoscopy* 2018; 50:684–692.
- Sumimoto K, Tanaka S, Shigita K, et al. Clinical impact and characteristics of the narrow-band imaging magnifying endoscopic classification of colorectal tumors proposed by the Japan NBI Expert Team. *Gastrointest Endosc* 2017; 85:816–821.
- Tanaka S, Sano Y. Aim to unify the narrow band imaging (NBI) magnifying classification for colorectal tumors: current status in Japan from a summary of the consensus symposium in the 79th Annual Meeting of the Japan Gastroenterological Endoscopy Society. *Dig Endosc.* 2011 May;23 Suppl 1:131-9. doi: 10.1111/j.1443-1661.2011.01106.x. PMID: 21535219.
- Tanaka S, Hayashi N, Oka S, Chayama K. Endoscopic assessment of colorectal cancer with superficial or deep submucosal invasion using magnifying colonoscopy. *Clin Endosc.* 2013;46(2):138-146.
- Tanaka S, Haruma K, Nagata S, Oka S and Chayama K. Diagnosis of invasion depth in early colorectal carcinoma by pit pattern analysis with magnifying endoscopy. *Dig Endosc* 13: S2-S5, 2001.
- Tanaka S, Kaltenbach T, Chayama K and Soetikno R: Highmagnification colonoscopy (with videos). *Gastrointest Endosc.* 64: 604-613, 2006.
- The Paris endoscopic classification of superficial neoplastic lesions: esophagus, stomach, and colon: November 30 to December 1, 2002. *Gastrointest Endosc.* 2003 Dec;58(6 Suppl):S3-43. doi: 10.1016/s0016-5107(03)02159-x. PMID: 14652541.
- Tobaru T, Mitsuyama K, Tsuruta O, Kawano H, Sata M. Sub-classification of type VI pit patterns in colorectal tumors: relation to the depth of tumor invasion. *Int J Oncol.* 2008 Sep;33(3):503-8.
- Uraoka T, Saito Y, Matsuda T, Ikehara H, Gotoda T, et al. Endoscopic indications for endoscopic mucosal resection of laterally spreading tumours in the colorectum. *Gut.* 2006 Nov;55(11):1592-7. doi: 10.1136/gut.2005.087452.
- Vleugels J.L., Koens L., Dijkgraaf M.G., Houwen B., Hazewinkel Y., et al. Suboptimal endoscopic cancer recognition in colorectal lesions in a national bowel screening programme. *Gut.* 2020;69:977–980. doi: 10.1136/gutjnl-2018-316882.
- Watanabe T, Muro K, Ajioka Y, et al. Japanese Society for Cancer of the Colon and Rectum (JSCCR) guidelines 2016 for the treatment of colorectal cancer. *Int J Clin Oncol* 2018; 23:1–34.
- Yamada M, Saito Y, Sakamoto T, Nakajima T, Kushima R, et al. Endoscopic predictors of deep submucosal invasion in colorectal laterally spreading tumors. *Endoscopy.* 2016 May;48(5):456-64. doi: 10.1055/s-0042-100453.



- Yoshida N, Hisabe T, Inada Y, et al. The ability of a novel blue laser imaging system for the diagnosis of invasion depth of colorectal neoplasms. *J Gastroenterol* 2014; 49:73–80.
- Yoshino T, Argilés G, Oki E, Martinelli E, Taniguchi H, Arnold D, Mishima S, Li Y, Smruti BK, Ahn JB, Faud I, Chee CE, Yeh KH, Lin PC, Chua C, Hasbullah HH, Lee MA, Sharma A, Sun Y, Curigliano G, Bando H, Lordick F, Yamanaka T, Tabernero J, Baba E, Cervantes A, Ohtsu A, Peters S, Ishioka C, Pentheroudakis G. Pan-Asian adapted ESMO Clinical Practice Guidelines for the diagnosis treatment and follow-up of patients with localised colon cancer. *Ann Oncol.* 2021 Dec;32(12):1496-1510. doi: 10.1016/j.annonc.2021.08.1752. Epub 2021 Aug 16. PMID: 34411693.
- Zwager LW, Bastiaansen BAJ, Montazeri NSM, Hompes R, Barresi V, et al. Deep Submucosal Invasion Is Not an Independent Risk Factor for Lymph Node Metastasis in T1 Colorectal Cancer: A Meta-Analysis. *Gastroenterology.* 2022 Jul;163(1):174-189. doi: 10.1053/j.gastro.2022.04.010. Epub 2022 Apr 15. PMID: 35436498.

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