



1^{er} Curso de Formación en Endoscopia Básica para Residentes

Organiza:



FEAD
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DEL APARATO DIGESTIVO

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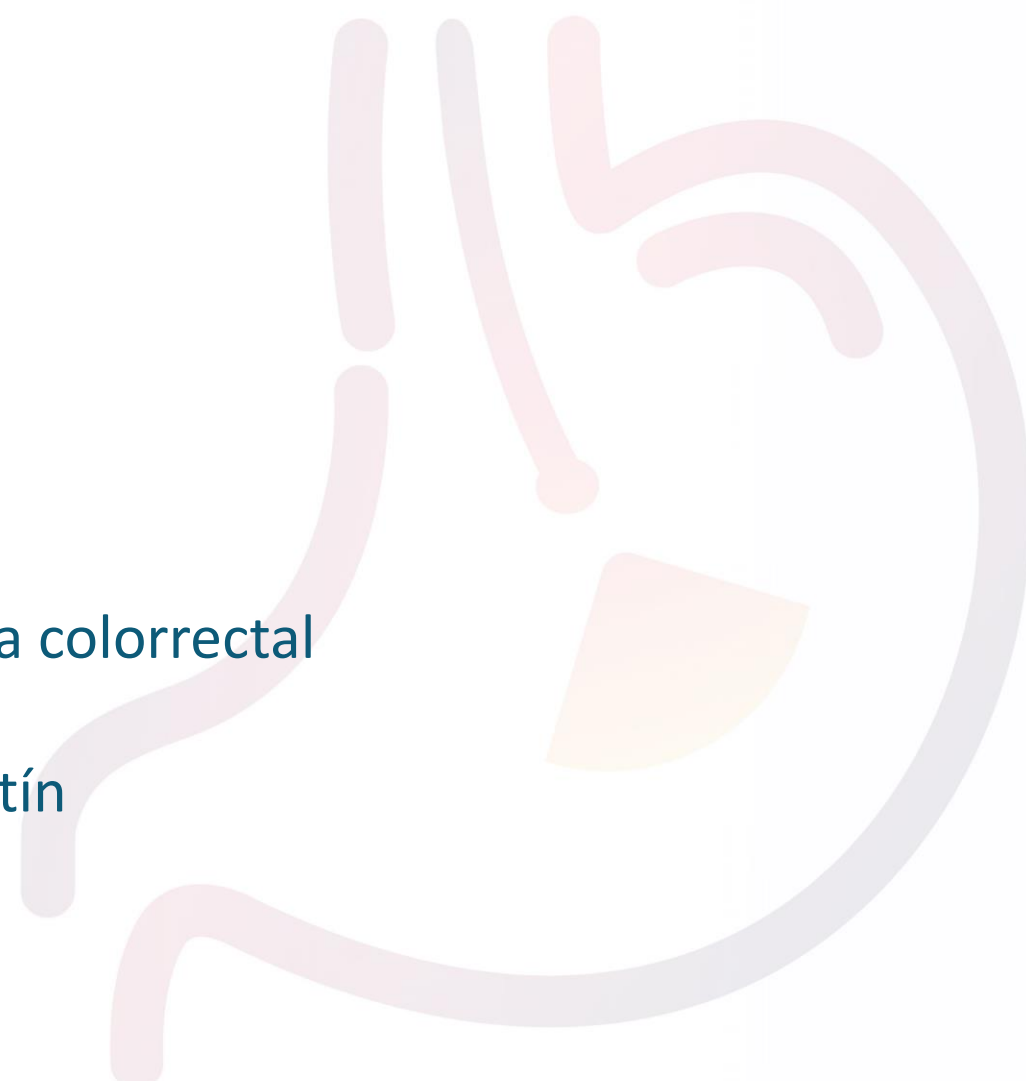


SEPD
SOCIEDAD ESPAÑOLA
DE PATOLOGÍA DIGESTIVA

Colonoscopia

Píldora: Cápsula endoscópica colorrectal

Autores: Dra. Ana Borda Martín



Programa

- Clases magistrales

- Anatomía normal, descripción del procedimiento, indicaciones y criterios de calidad.
- Patología neoplásica.
- Enfermedad inflamatoria intestinal.
- Patología vascular, infecciosa, y miscelánea.

- Seminarios

- Técnicas básicas de resección endoscópica en el colon: biopsia, polipectomía y RME estándar.
- Cromoendoscopia, magnificación y nuevas técnicas diagnóstico avanzado de lesiones neoplásicas.

Casos clínicos

- Caso clínico.

Dr. Eduardo Albéniz
Dra. Cristina Rubín de Célix
Dr. Carlos Marra
Dr. Óscar Nantes
Dra. Vanesa Jusué

Dr. Eduardo Albéniz

Dr. Óscar Nantes

Dra. Ana Amorós
Dr. Carlos Marra

- Píldoras

- Capsula endoscópica colorrectal. Dra. Ana Borda
- Modelos de entrenamiento en colonoscopia. Dra. Ana Amorós
- Dispositivos CAP en el endoscopio. Dra. Vanesa Jusue

- Algoritmos diagnósticos

- Diagnóstico de la hemorragia digestiva oculta. Dra. Nerea Hervás
Dra. Susana Oquiñena

- Aspectos clínicos relevantes que precisan investigación posterior

- Inteligencia artificial en colonoscopia Dra. Ana Amorós
- Robótica en endoscopia. Plataformas de ayuda para la resección endoscópica. Dra. Ana Amorós

- Test de autoevaluación

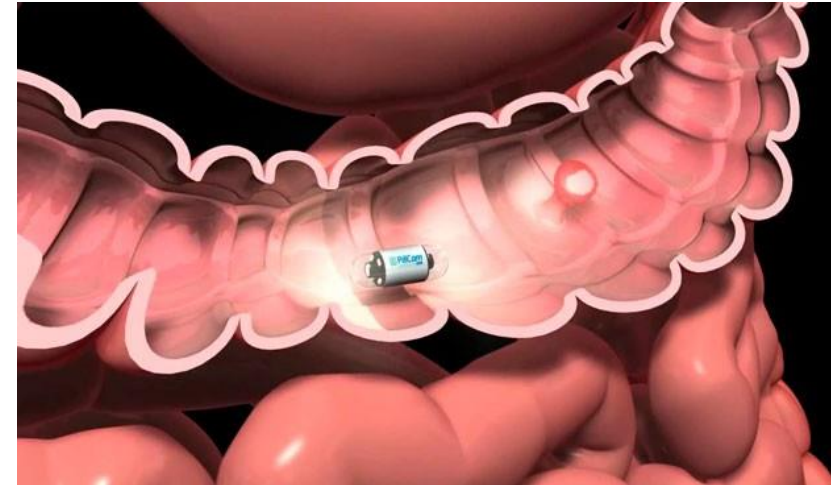
Conflicto de interés

- La autora niega tener ningún conflicto de interés.

Cápsula endoscópica colorrectal

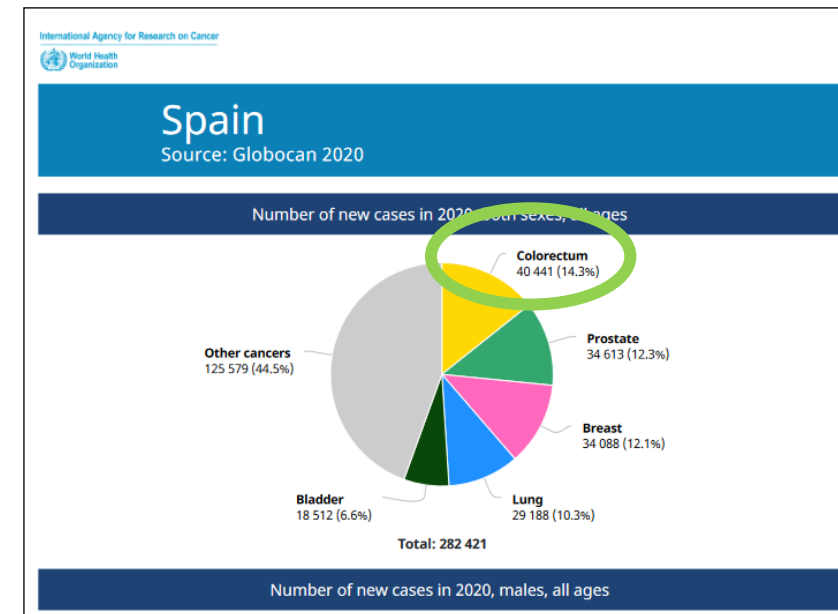
Índice

- Introducción
- Indicaciones
- Contraindicaciones
- Procedimiento
- Rendimiento diagnóstico
- Conclusiones



Introducción

- El cáncer colorrectal (CCR) : problema sociosanitario
- España 2021: tumor con mayor incidencia*
- Patogénesis conocida: secuencia adenoma-carcinoma: prevenible
- Alta tasa de curación en estadios iniciales



COLONOSCOPIA CONVENCIONAL

- Patrón oro:
- Descenso en la incidencia CCR
- Tasa de aceptación de la prueba variable



COLONOSCOPIA CON CAPSULA

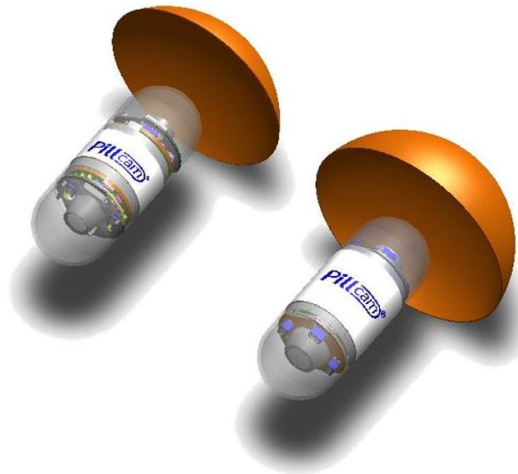
- Prueba no invasiva
- Método ambulatorio y sencillo
- Tasa de excreción de alrededor del 90%



Introducción

PillCam COLON-1

- Doble óptica.
- Longitud (31 x 11mm).
- Visión de 140°.
- 4 imágenes por segundo.
- 10 horas de batería.



PillCam COLON-2

- Ángulo de visión: 172°.
- Profundidad: 0-30mm.
- Agudeza visual: 0,09mm.
- Desde 4 hasta 35 imágenes por segundo.



Indicaciones



Contraindicaciones

- Pacientes con colonoscopia incompleta sin sospecha de estenosis
- Screening de CCR en población de riesgo medio
- Seguimiento de colitis ulcerosa

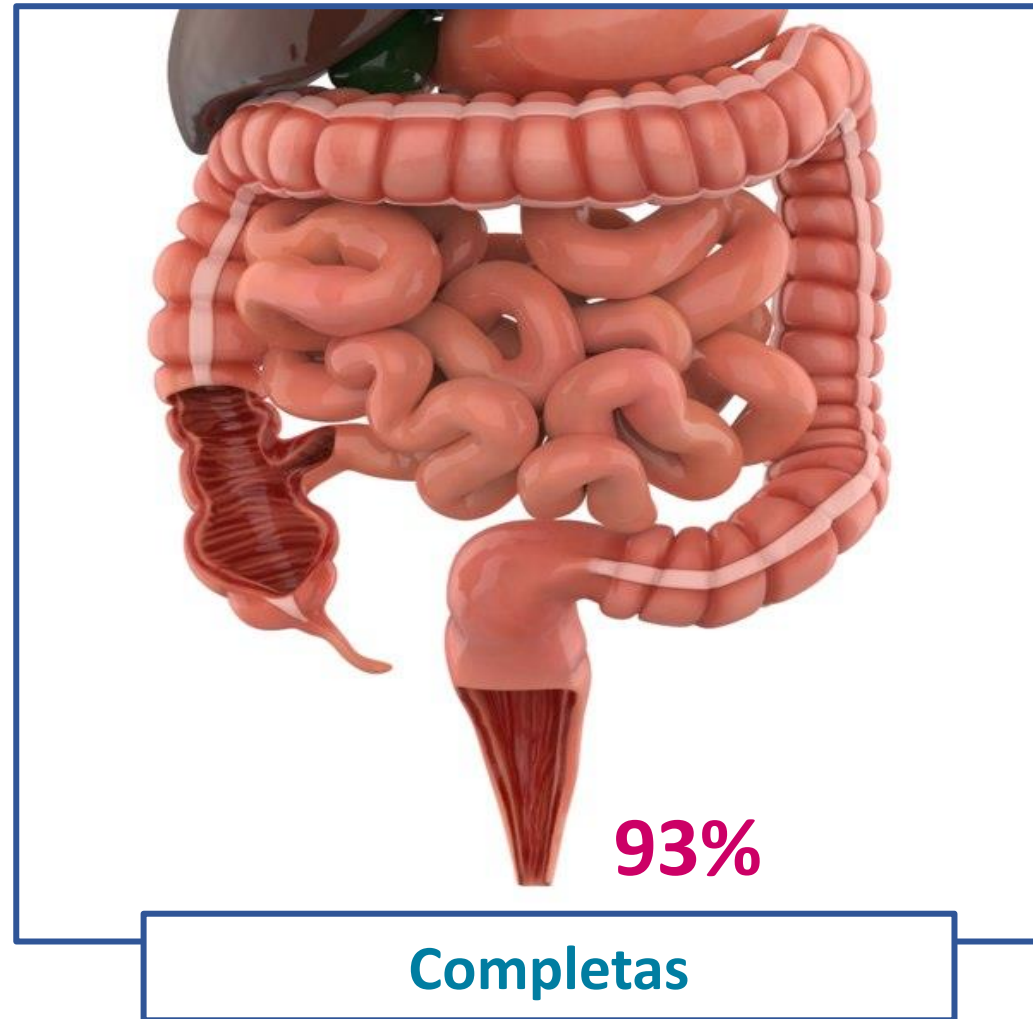
- Similares a la cápsula de intestino delgado:
 - Estenosis conocida del tracto gastrointestinal.
 - Embarazo
 - RM citada los días posteriores
- Son contraindicaciones relativas:
 - Dispositivos cardíacos implantables
 - Disfagia orofaríngea
 - Insuficiencia cardíaca congestiva
 - Insuficiencia renal

Spada C, Hassan C, Galmiche JP, et al. Colon capsule endoscopy: European Society of Gastrointestinal Endoscopy (ESGE) Guideline. Endoscopy 2012;44: 527–36.



Procedimiento

Preparación



Día 0
PEG - 2 litro
Motilium 20 mg
Ingestión
NaP - 30 ml
Agua
NaP - 15 ml
Bisacodilo



Rendimiento diagnóstico:

Clinical Gastroenterology and Hepatology 2016;14:1533–1543

SYSTEMATIC REVIEWS AND META-ANALYSES

Fasiha Kanwal, Section Editor

Accuracy of First- and Second-Generation Colon Capsules in Endoscopic Detection of Colorectal Polyps: A Systematic Review and Meta-analysis

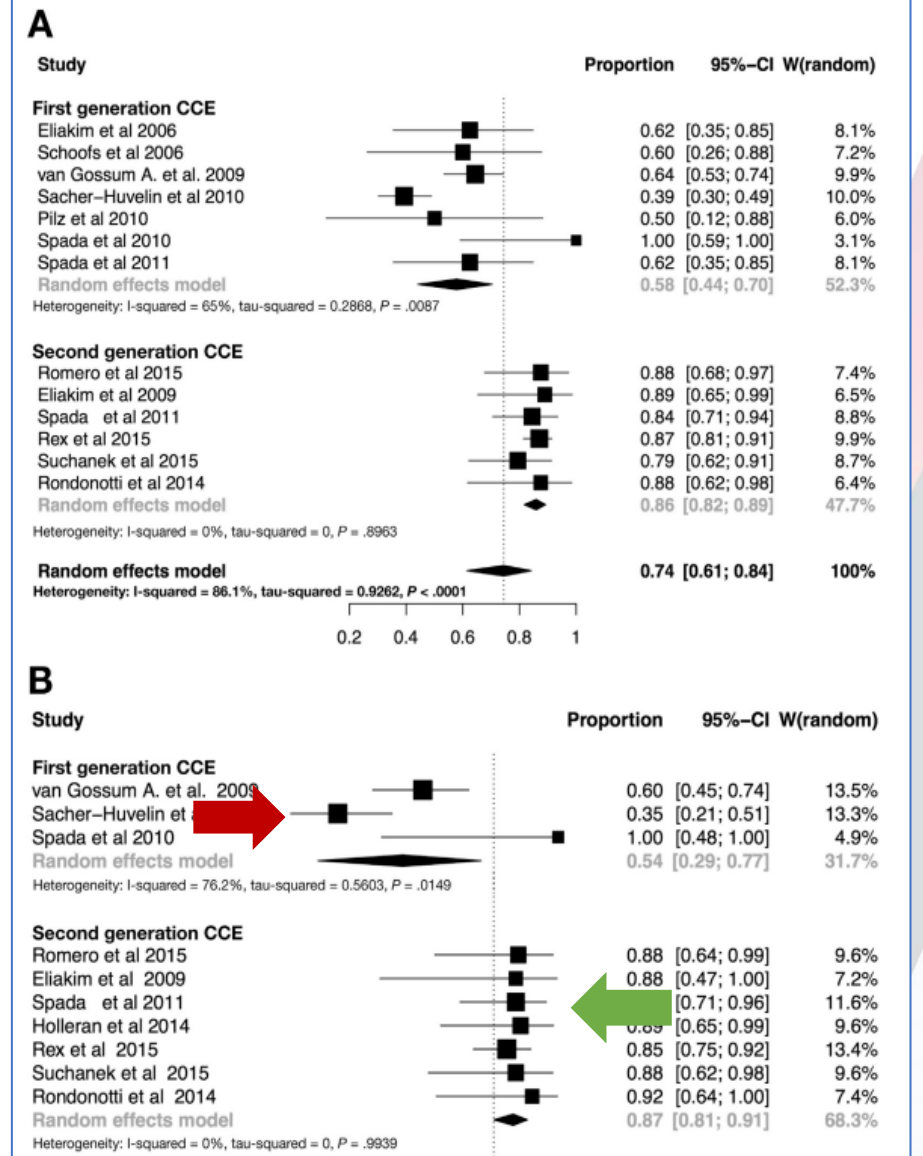
Cristiano Spada,* Shabana F. Pasha,† Seth A. Gross,§ Jonathan A. Leighton,‡ Felice Schnoll-Sussman,|| Loredana Correale,¶ Begoña González Suárez,# Guido Costamagna,* and Cesare Hassan*,**



Fourteen studies provided data from 2420 patients (1128 for CCE-1 and 1292 for CCE-2). CCE-2 and CCE-1 detected polyps >6 mm with 86% sensitivity (95% confidence interval [CI], 82%–89%) and 58% sensitivity (95% CI, 44%–70%), respectively, and 88.1% specificity (95% CI, 74.2%–95.0%) and 85.7% specificity (95% CI, 80.2%–90.0%), respectively. CCE-2 and CCE-1 detected polyps >10 mm with 87% sensitivity (95% CI, 81%–91%) and 54% sensitivity (95% CI, 29%–77%), respectively, and 95.3% specificity (95% CI, 91.5%–97.5%) and 97.4% specificity (95% CI, 96.0%–98.3%), respectively. CCE-2 identified all 11 invasive cancers detected by colonoscopy.

The sensitivity in detection of polyps >6 mm and >10 mm increased substantially between development of first-generation and second-generation colon capsules. High specificity values for detection of polyps by CCE-2 seem to be achievable with a 10-mm cutoff and in a screening setting.

Spada C et al. Accuracy of first- and second-generation colon capsules in endoscopic detection of colorectal polyps: A systematic review and meta-analysis. Clinical Gastroenterology and Hepatology 2016;14:1533–1543



Resultados

Colon Capsule Endoscopy

Cristiano Spada, MD*, Cesare Hassan, MD,
Guido Costamagna, MD, FACP

KEYWORDS

- Colon capsule endoscopy • Incomplete colonoscopy • Regimen of preparation
- Accuracy • Fields of application

KEY POINTS

- Colon capsule endoscopy (CCE) is a minimally invasive, painless endoscopic tool that allows colonic investigation without requiring intubation, insufflation or sedation.
- CCE is not an alternative to colonoscopy, but a complementary test for average-risk patients unwilling or unable to undergo colonoscopy, and cases of incomplete colonoscopy.

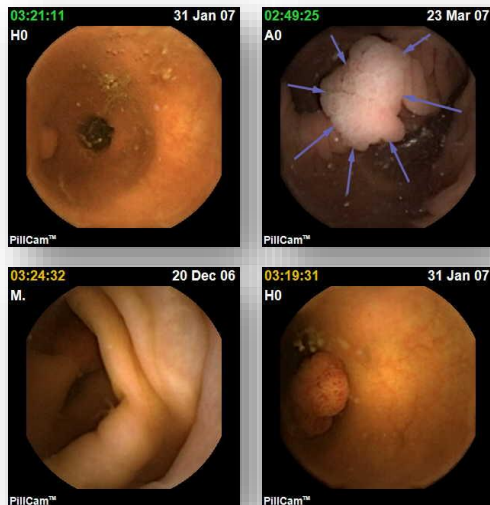


Table 2
Accuracy of PillCam COLON 2

Authors, Ref. Year	Sample Size (N)	Adequate Cleansing (%)	Excretion Rate (%)	Polyp ≥ 6 mm		Polyp ≥ 10 mm	
				Sensitivity (%)	Specificity (%)	Sensitivity (%)	Specificity (%)
Eliakim et al, ⁹ 2009	98	78	81 ^a	89	76	88	89
Spada et al, ⁸ 2011	117	85	81 ^a	84	64	88	95
Rex, ¹⁷ 2013	884	80	91 ^b	88	82	92	95
Hagel et al, ²⁰ 2014	24	90.1	71 ^c	72.2	90.9	75	100
Holleran et al ²¹	62	92	73 ^c	95	65	89	96

*Spada C. *Gastrointest Endoscopy Clin N Am.* 2015



CÁPSULA DE COLON Y COLONOSCOPIA INCOMPLETA



Review

Colon Capsule Endoscopy vs. CT Colonography Following Incomplete Colonoscopy: A Systematic Review with Meta-Analysis

Ulrik Deding ^{1,2,*}, Lasse Kaalby ^{1,2}, Henrik Bøggild ^{3,4}, Eva Plantener ²,
Mie Kruse Wollesen ², Morten Kobaek-Larsen ^{1,2}, Siri Juul Hansen ² and Gunnar Baatrup ^{1,2}

CCE and CTC and complete colonic view rates (CCE reaching the most proximal point of IC) of CCE were calculated. Per patient diagnostic yields of CCE and CTC were calculated stratified by polyp sizes. CCE completion rate and complete colonic view rate were 76% (CI 95% 68–84%) and 90% (CI 95% 83–95%). CTC completion rate was 98% (CI 95% 96–100%). Diagnostic yields of CTC and CCE were 10% (CI 95% 7–15%) and 37% (CI 95% 30–43%) for any size, 13% (CI 95% 9–18%) and 21% (CI 95% 12–32%) for >5-mm and 4% (CI 95% 2–7%) and 9% (CI 95% 3–17%) for >9-mm polyps. No study performed a reference standard follow-up after CCE/CTC in individuals without findings, rendering sensitivity calculations unfeasible. The increased diagnostic yield of CCE could outweigh its slightly lower complete colonic view rate compared to the superior CTC completion rate. Hence, CCE following IC appears feasible for an introduction to clinical practice. Therefore, randomized studies investigating CCE and/or CTC following incomplete colonoscopy with a golden standard reference for the entire population enabling estimates for sensitivity and specificity are needed.

	COLO-TAC		CAPSULA DE COLON	
POLIPO DE CUALQUIER TAMAÑO	10	(IC 95% 7-15)	37	(IC 95% 30-43)
POLIPO >5MM	13	(IC 95% 9-18)	21	(IC 95% 12-32)
POLIPO > 9MM	4	(IC 95% 2-7)	9	(IC 95% 3-17)

**Cancers* 2020, 12, 3367



CÁPSULA DE COLON Y COLO-TC EN POBLACIÓN DE RIESGO MEDIO

Multicentre, prospective, randomised study comparing the diagnostic yield of colon capsule endoscopy versus CT colonography in a screening population (the TOPAZ study)

Results From 320 enrolled subjects, data from 286 (89.4%) were evaluable. The proportion of subjects with any polyp ≥ 6 mm confirmed by OC was 31.6% for CCE versus 8.6% for CTC (pPr non-inferiority and superiority=0.999). The diagnostic yield of polyps ≥ 10 mm was 13.5% with CCE versus 6.3% with CTC (pPr non-inferiority=0.9954). The sensitivity and specificity of CCE for polyps ≥ 6 mm was 79.2% and 96.3% while that of CTC was 26.8% and 98.9%. The sensitivity and specificity of CCE for polyps ≥ 10 mm was 85.7% and 98.2% compared with 50% and 99.1% for CTC. Both tests were well tolerated/safe.

Conclusion CCE was superior to CTC for detection of polyps ≥ 6 mm and non-inferior for identification of polyps ≥ 10 mm. CCE should be considered comparable or superior to CTC as a colorectal neoplasia screening test, although neither test is as effective as OC.

Mark R Fleisher,² Steven Fern,³ Elizabeth Rajan,⁴ David M Kastenber,⁶ David Pound,⁷ Neofytos P Papageorgiou,⁸ Ira J Schmelkin,¹⁰ Douglas K Rex¹¹

*Cash BD, et al. Gut 2020

Table 3 Accuracy measures of CCE and CTC for the detection of polyps ≥ 6 mm, assessed in relation to confirmatory OC results

		Whole colon Rex method	
Analysis set		FAS (N=145)	PPAS (N=133)
CCE	Sensitivity, % (95% CI)	74.6 (62.1 to 84.0)	79.2 (66.4 to 88.2)
	Specificity, % (95% CI)	96.5 (87.8 to 99.2)	96.3 (87.1 to 99.2)
	PPV (95% CI)	95.6 (82.2 to 98.4)	95.5 (81.5 to 98.4)
	NPV (95% CI)	84.7 (76.2 to 90.6)	87.5 (78.8 to 93.0)
Analysis set		FAS (N=141)	PPAS (N=128)
CTC	Sensitivity, % (95% CI)	22.9 (13.1 to 36.7)	26.8 (15.6 to 42.1)
	Specificity, % (95% CI)	97.8 (92.0 to 99.9)	98.9 (93.2 to 100.0)
	PPV (95% CI)	84.6 (56.5 to 96.9)	91.7 (62.5 to 100.0)
	NPV (95% CI)	71.1 (62.7 to 78.3)	74.1 (65.4 to 81.3)

CCE, colon capsule endoscopy; CTC, CT colonography; FAS, full analysis set; NPV, negative predictive value; OC, optical colonoscopy; PPAS, per-protocol analysis set; PPV, positive predictive value.

Table 5 Accuracy measures of CCE and CTC in the detection of polyps ≥ 10 mm, assessed in relation to confirmatory OC results

		Whole colon Rex	
Analysis set		FAS (N=145)	PPAS (N=133)
CCE	Sensitivity, % (95% CI)	76.0 (66.2 to 88.8)	85.7 (74.5 to 95.9)
	Specificity, % (95% CI)	98.3 (93.8 to 99.9)	98.2 (93.3 to 99.9)
	PPV (95% CI)	90.5 (69.9 to 98.6)	90.0 (68.7 to 98.4)
	NPV (95% CI)	95.2 (89.6 to 98.0)	97.3 (92.1 to 99.4)
Analysis set		FAS (N=141)	PPAS (N=128)
CTC	Sensitivity, % (95% CI)	50.0 (28.0 to 72.0)	50.0 (28.0 to 72.0)
	Specificity, % (95% CI)	98.4 (94.0 to 99.9)	99.1 (94.6 to 100.0)
	PPV (95% CI)	80.0 (47.9 to 95.4)	88.9 (54.3 to 100.0)
	NPV (95% CI)	93.9 (88.2 to 97.0)	93.3 (87.1 to 96.7)

Results reported are from unblinded, unadjudicated, central reader data set. The study was not powered to assess ≥ 10 mm polyps. CCE, colon capsule endoscopy; CTC, CT colonography; FAS, full analysis set; NPV, negative predictive value; OC, optical colonoscopy; PPAS, per-protocol analysis set;

COLONOSCOPIA CON CÁPSULA Y ENFERMEDAD INFLAMATORIA INTESTINAL

COLITIS ULCEROSA

- Indicación: valorar curación mucosa.
- Parece que existe una buena correlación entre la imagen endoscópica y la de la cápsula en cuanto a determinar la severidad de la inflamación*.
- Ventaja: visualiza intestino delgado, útil en colitis indeterminadas.
- La inflamación en la colitis ulcerosa no es parcheada, pero es difusa: se podría reducir el volumen de laxante, aumentando la aceptación de la prueba.

ENFERMEDAD DE CROHN

- PILLCAM CROHN: panendoscopia
 - 50% afectación intestino delgado + colon.
 - 33 % intestino delgado
- Mas del 85 % de los pacientes con Crohn establecido en remisión clínica pueden tener actividad endoscópica.
- Estudios sobre preparación y validación de Scores de inflamación

* Current status of colon capsule endoscopy. Digestive Endoscopy 2021;33:521-537

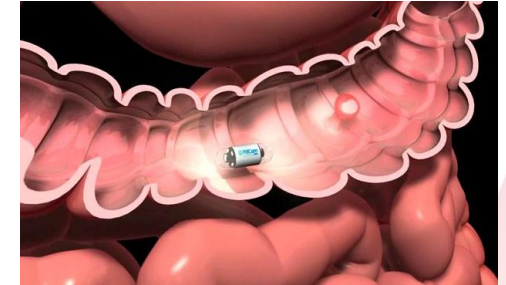
** Evaluation of a new pan-enteric video capsule endoscopy system in patients with suspected or established inflammatory bowel disease – feasibility study. Endoscopy International Open 2018; 06: E1235–E1246



Conclusiones



- Prueba no invasiva, ambulatoria, sin sedación.
- Técnica con rendimiento aceptable en:
 - Pólipos
 - Valoración de inflamación colónica.
- Tasa de exploraciones completas elevada.
- Explorador-dependiente. Paciente-dependiente.
- Alternativa a la colonoscopia, no sustituta.
- Tecnología en continuo desarrollo: inteligencia artificial, avance guiado...



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