

obtaining tissue diagnosis requires invasive surgical intervention [15]. This presents a challenge when considering non-operative, more conservative management.

We encountered an 18-year-old patient with an MOCT that had fistulated into the bowel and was managed conservatively, with no apparent complications over nearly two years of follow-up [16]. This rare case raises the question of whether similar occurrences have been reported and what role non-operative management might play, considering this condition predominantly affects young women in their fertile years [2-5].

A review of the available literature revealed that surgical management with laparotomy or laparoscopy was predominantly employed in nearly all previously reported cases of MOCT presenting with bowel fistula [5]. We therefore designed and conducted a systematic review of the literature to provide a comprehensive overview of the clinical presentation, recommended investigations, management strategies, and outcomes associated with this condition.

Aim

This systematic review aims to describe the presentation, management options, and outcomes of patients with ovarian teratoma complicated by a bowel fistula.

Methods

Literature search and registration

We conducted a systematic review of available literature on ovarian teratoma with bowel fistula. We performed a detailed search of published articles in three online databases, PubMed®/MEDLINE, SCOPUS, and Excerpta Medica database, for all available publications until October 2025. The final search was performed on 17th October 2025. In addition, we hand-searched the retrieved articles for any additional publications not otherwise identified.

The search terms used in (All Field), or (Key words), and automatically mapped to relevant (MeSH Terms), were (Ovarian” OR “Ovary” OR “Tubo-ovarian” AND “Fistula” AND “Teratoma” OR “Dermoid”). No filters were applied to limit the search. Our search strategy was registered with CABI International Repository, searchRxiv, and is available here: (<https://www.cabidigitallibrary.org/doi/10.1079/searchRxiv.2024.00553>, <https://www.cabidigitallibrary.org/doi/10.1079/searchRxiv.2024.00554>, <https://www.cabidigitallibrary.org/doi/10.1079/searchRxiv.2024.00555>) [17-19]. The systematic review was conducted in accordance with the standards of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement [20]. It was registered with the National Institute for Health Research International Prospective Register of Systematic Reviews

(PROSPERO) registration number (CRD42024557664) prior to screening of results.

Eligibility criteria

We included all studies that involved cases of ovarian teratoma, histologically confirmed, complicated by a bowel-related fistula, with no age restriction. Due to the rarity of the cases, a decision was made to include foreign language publications. However, we excluded cases of teratoma without a bowel fistula, different organ fistulas, different primary lesions/tumors, letters to editors, review articles, no abstract, full paper not retrievable, conference abstracts, theses, articles in press, books or book chapters, and other grey literature (Table S1).

Study selection

All results from the initial search were populated on Excel® (Microsoft) and screened. Two reviewers independently screened each of the identified publications in two stages, following an initial screening that identified and removed any duplicates. The remaining publications were reviewed using titles and abstracts. Full-text review was conducted only for studies that met the inclusion criteria. Any disagreements between two reviewers were resolved by discussion with a third reviewer. The studies were compiled in Endnote® (Thomson Reuters). Foreign language articles were translated using Google Translate™. Lack of native speakers to confirm translation accuracy was an accepted limitation.

Data extraction

Data from each of the selected publications were extracted by two independent authors using a standardized Excel® worksheet. Data were collected on: patient demographics (age, co-morbidities, ASA grade), clinical presentation, tests performed, details regarding the lesion, treatment given, and outcomes.

Quality of studies

Quality assessment was performed using the Quality Appraisal Checklist for Case Series Studies [21]. Two authors independently assessed the quality of each selected case report using the checklist. The checklist was, however, modified for relevance to the review. Questions not relevant to single case reports were excluded (Table S1). The summary of the findings is presented in Table S2. However, the inherent bias of case reports was an accepted limitation.

Data analysis

We used descriptive statistics to report on the clinical and demographic findings in these studies, given the descriptive nature of the data extracted from case reports. Given the heterogeneity of case reporting, it was decided that missing data from variables of interest in the analysis would be reported as “missing” and included in the final

Table 1. Summary of all systematic review results.

AUTHOR, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY
Figiel et al., 1966 [22]	57	3 months: 1. GI symptoms 2. Fever	1. AXR 2. Barium enema	1. Laparotomy	1. MOCT 2. SCC
Dandia et al., 1967 [23]	9	1. GU symptoms 2. GI symptoms	1. Proctoscopy	1. Laparotomy	1. MOCT
Rakower et al., 1976 [24]	40	1. 3-4 years of GI symptoms: 2. 15-pound weight loss and anorexia	1. Sigmoidoscopy	1. Laparotomy	1. MOCT
Farkouh et al., 1982 [25]	26	1. GI symptoms	1. Sigmoidoscopy 2. Barium enema	1. Laparotomy	1. MOCT
Hachiya et al., 1982 [26]	27	1. GI symptoms	1. Colonoscopy	1. Laparotomy	1. MOCT
Shiels et al., 1986 [12]	21	1. Gynecological symptoms 2. GI symptoms	1. AXR 2. Barium enema	1. Laparotomy	1. MOCT
Landmann et al., 1988 [27]	22	1. GI symptoms	1. USS 2. Proctoscopy 3. Barium enema	1. Laparotomy	1. MOCT
de Diego et al., 1989 [28]	75	1. GI symptoms 2. GU symptoms 3. Fever 4. 3 months of anorexia, weight loss	1. USS 2. CT scan 3. AXR 4. GI contrast study 5. Barium enema	1. Laparotomy	1. MOCT 2. SCC
Suzuki et al., 1999 [29]	64	1. GU symptoms	1. USS 2. CT scan 3. Colonoscopy 4. Flexible cystoscopy 5. Small intestine contrast exam	1. Laparotomy	1. MOCT 2. Ovarian goiter (Struma ovarii)
Okada et al., 2005 [30]	54	1. GI symptoms	1. CT scan 2. AXR	1. Laparotomy	1. MOCT 2. SCC
Park et al., 2006 [31]	41	1. GI symptoms	1. CT scan 2. Colonoscopy	1. Laparotomy	1. MOCT
Cebesoy et al., 2009 [32]	30	1. GI symptoms	1. USS 2. CT scan 3. Sigmoidoscopy	1. Laparotomy	1. MOCT
Arias-Garzón et al., 2009 [33]	54	1. GI symptoms	1. CT scan 2. Rectoscopy	1. Laparotomy	1. MOCT
Wichremasinghe et al., 2010 [34]	39	6 months 1. GI symptoms	1. CT scan 2. Flexible sigmoidoscopy	1. Laparotomy	1. MOCT
Chong et al., 2011 [35]	85	1. GI symptoms 2. Fever 3. Weight loss for 6 months.	1. CT scan 2. AXR	1. Laparotomy	1. MOCT 2. SCC
Singh et al., 2012 [11]	23	1. GI symptoms 2. GU symptoms	1. USS 2. CT scan 3. Colonoscopy	1. Laparotomy	1. MOCT
Von-Walter et al., 2012 [36]	25	1. GI symptoms	1. USS 2. CT scan	1. Laparoscopy converted to laparotomy	1. MOCT
Conway et al., 2012 [37]	26	1. GI symptoms	1. CT scan	1. Laparotomy	1. MOCT
Yi et al., 2015 [38]	42	1. GI symptoms	1. CT scan 2. Colonoscopy	1. Laparotomy	1. MOCT 2. SCC
Min et al., 2015 [39]	67	1. GI symptoms	1. CT scan 2. Colonoscopy 3. PET scan	1. Laparotomy	1. MOCT 2. SCC
Kim et al., 2016[40]	17	1. GI symptoms	1. USS 2. CT scan	1. Laparoscopy	1. MOCT
Chang et al., 2016 [41]	37	1. GI symptoms	1. CT scan 2. Colonoscopy	1. Diagnostic laparoscopy + robotic-assisted	1. MOCT

AUTHOR, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY
Kizaki et al., 2016 [5]	43	1. GI symptoms 2. Flu-like symptoms, fever	1. USS 2. CT scan 3. Colonoscopy 4. MRI	1. Laparotomy	1. MOCT
Chan et al., 2016 [42]	47	1. GI symptoms	1. CT scan 2. Colonoscopy 3. MRI	1. Laparotomy	1. MOCT
Baek et al., 2016 [43]	58	1. GI symptoms	1. CT scan 2. Sigmoidoscopy	1. Laparoscopy	1. MOCT
Vilches-Jimenez et al., 2018 [44]	39	1. GI symptoms	1. USS 2. CT scan 3. Colonoscopy 4. MRI	1. Laparotomy	1. Endometriosis in both ovaries 2. MOCT
Chauhan et al., 2018 [45]	55	1. GI symptoms	1. USS 2. CT scan	1. Laparotomy	1. MOCT
Dixon et al., 2019 [46]	44	1. GI symptoms	1. CT scan 2. Colonoscopy 3. MRI	1. Laparotomy	1. MOCT 2. Extensive endometriosis
Esterson et al., 2019 [47]	59	1. GI symptoms 2. Fever, tachycardia	1. CT scan	1. Laparotomy	1. MOCT 2. SCC
Hamza et al., 2020 [48]	31	1. GI symptoms	1. USS 2. CT scan	1. Laparotomy	1. MOCT
Rzaca et al., 2020 [49]	49	1. GI symptoms	1. CT scan 2. Colonoscopy	1. Laparoscopy	1. MOCT
Abduljabbar et al., 2021 [50]	45	1. GI symptoms 2. Fever, night sweats, unintentional weight loss	1. CT scan	1. Laparotomy	1. MOCT 2. SCC 3. Right serous Cystadenoma
Agrawal et al., 2024 [51]	55	1. GI symptoms 2. Weight loss, fever for 1 day	1. USS 2. CT scan	1. Laparotomy	1. MOCT 2. SCC
Tokunaga et al., 2025 [52]	30	1. GI symptoms 2. Fever	1. CT scan 2. USS 3. MRI	1. Laparoscopy	1. MOCT
Kirengo et al., 2025 [16]	18	1. GI symptoms 2. Gynecological symptoms	1. USS 2. CT scan 3. MRI 3. Sigmoidoscopy	1. Non-operatively	1. MOCT

denominator (n) for each variable. No imputation was performed to minimize bias.

Results

Thirty-five papers were selected from 1,331 identified in the preliminary database search, as shown in Figure 1. One additional paper was included from a hand search. All the identified articles were case studies. The studies ranged from 1966 to 2025, with the highest number of publications in 2016 ($n = 5$) (Figure 2). Patients were aged 9–85 years, with a median age of 41.3 years (mean age of 41.5 years, SD \pm 17.6). The full results from the systematic review are summarized in Table 1.

AXR, abdominal x-ray; N/A, not available/not reported/missing; SCC, squamous cell carcinoma.

Patients presented with a variety of symptoms, with the shortest duration being 1 day and the longest being 5 years. The most frequent presenting complaint was

abdominal pain (77.1%) and per rectal bleeding or blood in stool (30.3%) (Table 2). Two cases had a vesicular fistula in addition to a bowel fistula. The majority of patients' past medical history was either missing ($n = 17$) or not significant ($n = 9$). Four patients (11.4%) had a previous history of an ovarian cyst (Table 3).

Of the 35 cases reviewed, CT scan (28, 80%) was the most frequently performed imaging, followed by endoscopy (21, 60%), other imaging (14, 40%), and USS (15, 42.9%). Other imaging performed included abdominal x-ray (AXR) and barium enema (6, 17.1%). Most lesions were found to involve the left ovary or adnexa (18, 51.4%), compared to the right (7, 20%) or bilateral (3, 8.6%). The majority of patients (34, 97.1%) were managed with surgery involving adhesiolysis, resection of tumor, involved/attached tissues and repair of fistula defects, \pm salpingo-oophorectomy (8, 22.9%), \pm hysterectomy (6, 17.1%), \pm colostomy (3, 8.6%), \pm bowel anastomosis (10, 28.6%).

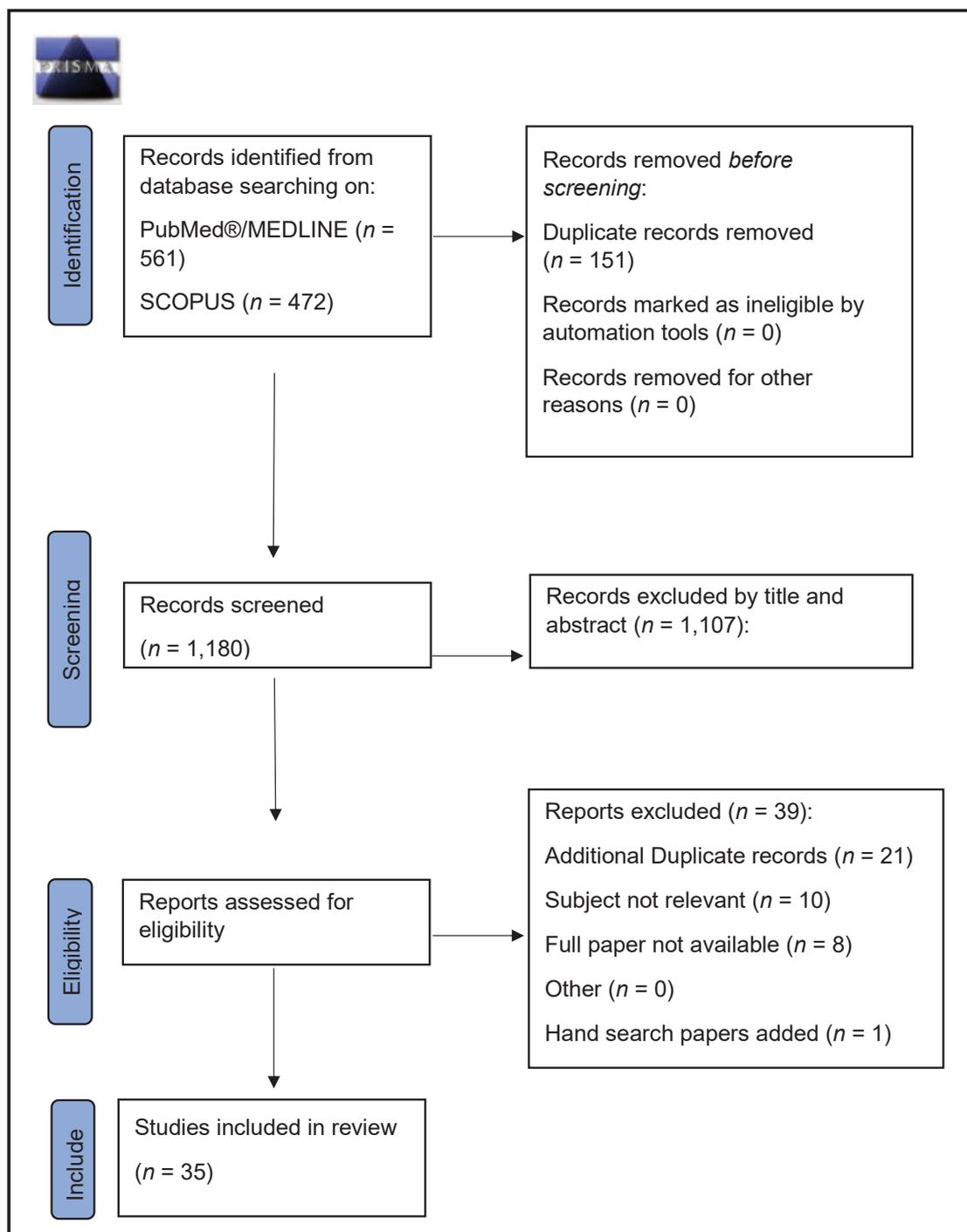


Figure 1. PRISMA flow diagram of review of literature of ovarian teratoma with bowel fistula.

Six cases (17.1%) made use of laparoscopy, and 1 was robotic-assisted. Only one case (2.9%) was managed non-operatively.

Histology confirmed ovarian teratoma in all cases. One patient exhibited malignant transformation within an ovarian dermoid cyst, and malignant squamous cell carcinoma was also found in seven cases (20%). Two of these patients had follow-up CT scans that showed tumor recurrence Table 4. Data on follow-up complications (17, 48.6%) and duration (25, 71.4%) were missing in

the majority of the cases reviewed. However, 12 patients (34.3%) had no complications, and four died (11.4%). The shortest post-op stay reported was 4 days, and the longest was 4 months.

Discussion

This systematic review provides a comprehensive synthesis of published cases of ovarian teratoma complicated by bowel fistulation. Over 60 years (1966-2025), only 35 cases were identified, with nearly half published within

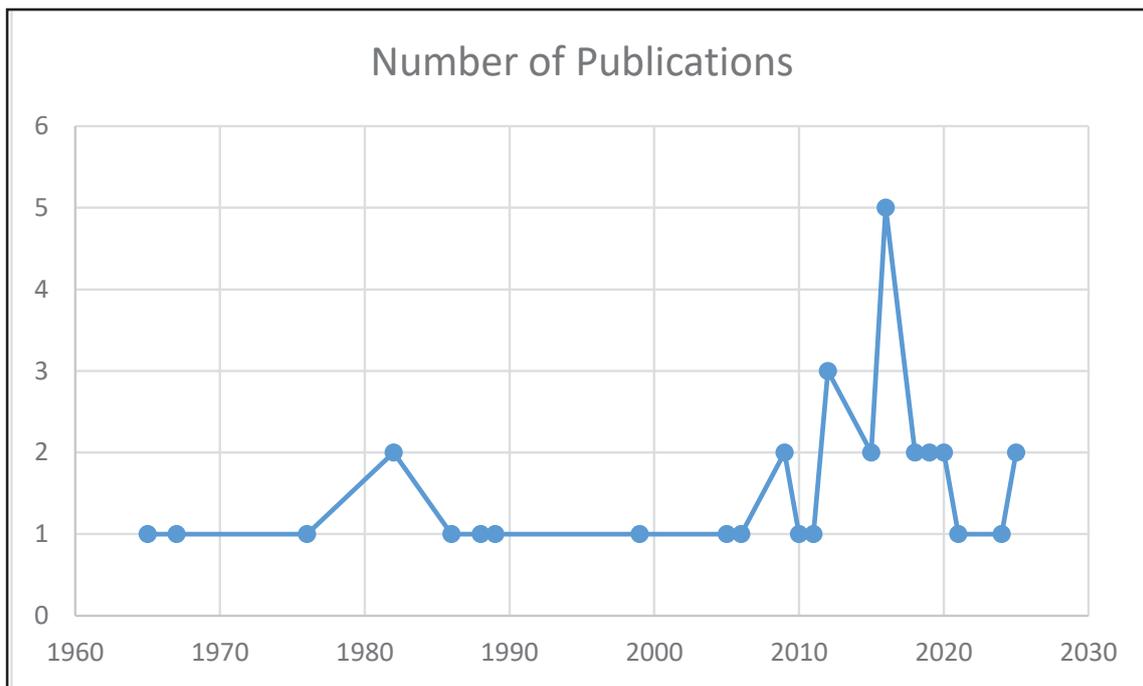


Figure 2. Publications by year.

Table 2. Summary of presenting complaints.

PRESENTING COMPLAINTS		NUMBER (N = 35)	PERCENTAGE (%)	
Gastrointestinal (GI)	Abdominal pain	27	77.1%	
	Abdominal Swelling	6	17.1%	
	Altered bowel habit	2	5.7%	
	Anorexia	1	2.9%	
	Constipation	2	5.7%	
	Diarrhea	5	14.3%	
	Nausea	3	8.6%	
	Rectal mass	1	2.9%	
	Stool	Pus	1	2.9%
		Hair	5	14.3%
		Sebaceous material	1	2.9%
		Blood	10	30.3%
	Tenesmus	4	11.4%	
Vomiting	3	8.6%		
			0.0%	
Gynecology	Dyspareunia, irregular menses, discharge	2	5.7%	
Genitourinary (GU)	Frequency, dysuria, hematuria	3	8.6%	
Other	Fever	7	20.0%	
	Tachycardia	1	2.9%	
	Weight loss	5	14.3%	

the past decade (17, 48.5%). Although MOCTs are relatively common benign tumors, fistulation into the bowel remains an exceptionally rare complication that presents considerable diagnostic and therapeutic challenges. The majority of patients were managed with open surgical

intervention, while only a single case reported successful conservative management. This review outlines the clinical patterns associated with this condition and underscores the need for timely, accurate diagnosis and an individualized approach to management.

Table 3. Summary of past history.

PAST HISTORY	NUMBER (N = 35)	%
Not reported	17	48.6%
Not significant	9	25.7%
Ovarian cyst	4	11.4%
Bladder calculus	1	2.9%
Colon polyp	1	2.9%
Undetermined abdominal cyst	1	2.9%
Other: Diabetes, abdominal Tb, HIV, C-section	2	5.7%

Table 4. Post-op summary.

POST-OP COMPLICATIONS	NUMBER	%
Missing	17	48.6%
None	12	34.3%
Died	4	11.4%
DVT	1	2.9%
Ileus	1	2.9%
Metastasis	2	5.7%
Wound complications	2	5.7%
Follow-up duration		
Missing	25	71.4%
2-3 years	1	2.9%
1-2 years	4	11.4%
0-1 year	5	14.3%
Follow-up investigations		
Missing	31	88.6%
None/ clinical	1	2.9%
CT-scan	2	5.7%
MRI- scan	1	2.9%
Endoscopy	1	2.9%
Post-op stay		
Missing	19	54.3%
<7 days	6	17.1%
7-14 days	6	17.1%
15-30 days	2	5.7%
1-4 months	2	5.7%

Our systematic review found a median age of 41.3 years, suggesting that fistulation most commonly occurs in middle-aged women, although reported cases span from adolescence to advanced age (9-85 years). This contrasts with the wider literature, which indicates that MOCTs typically affect women below their third decade of life [2-5]. Approximately 80% of females diagnosed with ovarian teratomas are of reproductive age [29].

Abdominal pain was the most frequently reported presenting symptom among patients with MOCT complicated by fistula, consistent with the symptom profile of uncomplicated MOCTs [4,8-10]. Other manifestations varied according to the organs involved. Gastrointestinal

involvement often produced diarrhea and rectal bleeding, while genitourinary extension presented with dysuria or hematuria. More than half of the cases involved the left adnexa (51.4%). This finding may be incidental, but could also reflect the anatomical proximity between the left ovary and the sigmoid colon, which could facilitate fistula formation. Constitutional symptoms such as fever and weight loss were less common, occurring in 20% and 14.3% of cases, respectively. The duration of symptoms varied widely, ranging from a single day to as long as five years [11]. Given this variability and the often vague clinical presentation, diagnosis can be challenging and requires a high index of suspicion. Early utilization of imaging is

therefore essential to exclude alternative pathologies and confirm the diagnosis.

Although ultrasound is the recommended first-line investigation for women presenting with non-specific abdominal pain, computed tomography (CT) was the predominant imaging modality used in our review (80%) [15]. Ultrasound was performed in fewer than half of the patients with MOCT complicated by bowel fistula. This likely reflects the emergent presentation and diagnostic uncertainty surrounding these cases. CT is more readily available in acute settings and is preferred when evaluating non-specific abdominal pain. It is superior in detecting fatty or calcified components and in delineating fistulous tracts in complicated MOCTs [53,54]. While ultrasound remains valuable for differentiating ovarian masses (sensitivity 92.7%, specificity 87.5%-99%), magnetic resonance imaging offers the highest diagnostic accuracy, with specificity approaching 100% in women with pelvic pathology, while avoiding ionizing radiation. This is an important consideration as the majority of these patients are of reproductive age [15,53].

Radiological features suggestive of a fistulating MOCT include visualization of the teratoma and evidence of communication with bowel. MOCTs typically appear as ill-defined fat and fluid-containing masses, with areas of calcification (often bones or teeth), or a solid protuberance (Rokitansky nodule/dermoid plug), which is present in approximately 92% of MOCTs [54]. Other radiological signs include “The Poké Ball sign,” described as a single globular mass floating in a fat-fluid level, and “The floating ball sign,” defined as multiple mobile nodules within the fatty component of a MOCT. Although they have low sensitivity (25%-30%), both are pathognomonic signs and are visible on both CT and MRI images [55]. Fistulation may be suggested by the presence of intralesional air and loss of the intervening fat plane, indicative of adherence to surrounding viscera [11,44]. In Addition, malignant transformation can manifest radiologically as irregular, cauliflower-like projections with infiltrative margins and invasion of surrounding structures [54].

Notably, endoscopy was performed in 60% of reported cases, probably due to the frequency of gastrointestinal bleeding among presenting symptoms. Endoscopy provides direct visualization and potential for biopsy. Although invasive, it is considerably less so than laparotomy and may be a useful adjunct in the diagnostic work-up, especially when assessing patient suitability for non-operative management.

Surgical intervention was performed in all but one case (97.1%), reaffirming that resection remains the mainstay of treatment. Most procedures were performed via open laparotomy, despite current access to laparoscopy. Minimally invasive approaches were reported in only 20% of cases (laparoscopy in six and robotic-assisted surgery in one) [3,40,41,49,52]. The single report of successful

conservative management challenges the view that surgery is invariably required [16]. Non-operative management may be considered only in carefully selected cases. Potential candidates would need to meet a strict criteria such as clinically stable, no evidence of peritonitis, sepsis, or bowel obstruction, no signs of malignancy or malignant transformation at presentation or surveillance, expulsion of MOCT with a limited or sealed fistula, young patients for whom fertility preservation is a major concern, or elderly frail patients who would have a considerable perioperative surgical risk of morbidity. Conservative management, however, carries the risk of recognized complications such as local abscess formation, systemic sepsis, progression of fistula, bowel obstruction, and delayed detection of malignant transformation, which carries a poor prognosis. Therefore, a structured surveillance strategy is essential to mitigate against these risks. We would suggest a clinical assessment, review of inflammatory markers, and interval cross-sectional imaging (preferably MRI), initially at one month, followed by every 3-6 months if uncomplicated. However, this should be adjusted based on the patient’s presentation.

Malignant transformation to squamous cell carcinoma was seen in 20% of cases, with an associated mortality of 11.4% [22,28,30,35,38,47,50,51]. While most MOCT-related bowel fistulas are benign, malignant transformation markedly worsens prognosis and necessitates oncological resection with possible adjuvant therapy. Given the wide age range and potential impact on fertility, all management options should be discussed with patients to support informed decision-making. A multidisciplinary approach involving gynecologists, general surgeons, and radiologists is essential to ensure individualized treatment planning and optimal outcomes.

Limitations

The main limitation of this review is that the evidence base consists solely of single case reports, characterized by methodological heterogeneity, incomplete data, and inconsistent reporting of outcomes. This level of evidence is inherently prone to publication and reporting bias, as selectively published cases with unusual presentations limit the comparability and generalizability of the data.

Our systematic review was limited by a high proportion of missing follow-up data (71.4%). This is expected given the retrospective nature of the included reports, but it restricts the interpretation of long-term outcomes. Among studies that documented follow-up, approximately one-third of patients experienced uneventful recovery, suggesting a favorable prognosis in benign, adequately treated cases.

Ovarian teratoma with bowel fistulation remains exceedingly rare, with only 35 cases identified. Furthermore, the single report of successful conservative

management, while noteworthy, represents isolated evidence and should therefore be interpreted with caution.

Conclusion

Ovarian teratoma with bowel fistulation is a rare condition, with only 35 cases reported in the literature. Patients present with variable clinical features, making early diagnostic imaging crucial for definitive diagnosis. This review highlights the predominance of surgical management as the standard approach, while emphasizing the importance of multidisciplinary input in treatment planning. In carefully selected, uncomplicated cases, non-surgical management may be a feasible alternative. However, in the absence of prospective data, further studies are required to strengthen the evidence base and inform clinical practice guidelines.

What's new?

Benign ovarian tumors affect around 10%-20% of women during their lifetime, with MOCTs comprising about 70% of cases in those younger than 40 years. MOCT fistulation into the bowel is a rare and poorly characterized complication. This is the first comprehensive systematic review to look at all reported cases of ovarian teratoma complicated by bowel fistulation. The authors' review spans 60 years (1966-2025). It consolidates demographic, clinical, imaging, management, and outcome data from 35 published cases, describing clinical presentation patterns, diagnostic challenges, and management options. Notably, it includes the first documented case of successful non-operative management of an MOCT with bowel fistula, highlighting a potential treatment alternative for select benign cases.

Conflict of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Ethical approval

Formal ethical approval is not required for a systematic review.

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Table S1. Summary of eligibility criteria.

Population:	Any age, with ovarian teratoma
Exposure:	Histologically confirmed ovarian teratoma, with bowel fistula
Outcomes:	Clinical presentation, diagnostics, management, and follow-up
Exclusion:	Ovarian teratoma without bowel fistula, fistulation into different organ, different primary lesions, letters to editors, review articles, no abstract, full paper not retrievable, conference abstracts, theses, articles in press, books or book chapters, and grey literature.

Table S2. Detailed Summary of all systematic review results.

AUTHOR, STUDY TITLE, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY	POST-OP AND F/U
Leo S. et al., Report of two cases of sigmoidal fistula complicating tubo-ovarian disease, 1965 (30)	57	3 months: 1. GI symptoms - lower abdominal pain, vomiting 2. fever	1. AXR 2. Barium enema	Laparotomy + tumour resection + fistula repair	1. Ovarian dermoid cyst 2. Grade 2 squamous cell carcinoma	N/A
Dandia, S D et al., Rectovesical fistula following an ovarian dermoid with recurrent vesical calculus: a case report, 1967 (38)	9	1.GU - Suprapubic cystolithotomy wound breakdown (for recurrent vesical calculus) 2. GI symptoms - Watery loose movements per rectum and PR mass	1. Proctoscopy	1. Laparotomy + defunctioning transverse colectomy. 2. Excision and repair of the fistulous tract three weeks after.	Benign cystic ovarian teratoma	Nil, 2 year 5 months f/u
Rakower, S R. et al., Benign solid teratoma of the fallopian tube with rupture into the rectum: Report of a unique rectal tumor, 1976 (39)	40	1. 3-4 years of GI symptoms: abdominal pain, anorexia 2. 15-pound weight loss and anorexia	1. Sigmoidoscopy	1. Laparotomy + tumour resection + hysterectomy + bilateral salpingoophorectomy + transverse colectomy 2. Reversal of colectomy after 4 weeks	Benign predominantly solid ovarian teratoma	Nil, 1 year f/u

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AUTHOR, STUDY TITLE, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY	POST-OP AND F/U
Farkouh, E. et al., Benign solid teratoma of the ovary with rupture into the rectum, 1982 (40)	26	1. GI - abdominal pain exacerbated by defecation, tenesmus	1. Sigmoidoscopy 2. Barium enema	1. Laparotomy + tumour resection + right salpingoophorectomy	Right solid ovarian teratoma	Nil, 7 day post-op stay
Hachiya, T. et al., A case of ovarian teratoma penetrating into sigmoid, 1982 (41)	27	1. GI - abdominal pain, mass, PR bleeding, constipation	1. Colonoscopy	1. Laparotomy + tumour resection + left oophorectomy	Ovarian teratoma	Nil, 16 days post-op stay
Shiels, W.E. et al., Ovarian dermoid cyst complicated by an entero-ovarian fistula, 1986 (12)	21	1. Gyne -oligomenorrhoea, dyspareunia 2. GI - abdo pain, nausea	1. AXR 2. Barium enema	1. Laparotomy + Left salpingoophorectomy + fistula repair	Ovarian dermoid cyst	Nil
Landmann, D D. et al., Benign cystic ovarian teratoma with colorectal involvement - Report of a case and review of the literature, 1988 (42)	22	1. GI - rectal bleeding	1. USS 2. Proctoscopy 3. Barium enema	1. Laparotomy + left salpingoophorectomy + tumour resection + colorectal anastomosis	Benign cystic ovarian teratoma	Nil
de Diego R. et al., Calcified pelvic mass with fistulization into the sigmoid colon [Masa pelvica calcificada fistulizada a colon sigmoides], 1989 (31)	75	1. GI - abdominal pain, tenesmus 2. GU- dysuria, haematuria 3. Fever, 4. 3 months anorexia, weight loss	1. USS 2. CT Scan 3. AXR 4. GI contrast study 5. Barium enema	1. Laparotomy + tumour resection + fistulectomy	1. Mature cystic ovarian teratoma 2. Malignant squamous cell carcinoma	N/A
Motofumi S. et al., Dermoid cyst with thyroid follicle perforated into bladder and ileum: a case report, 1999 (43)	64	1. GU -microscopic haematuria	1. USS 2. CT scan 3. Colonoscopy 4. Flexible cystoscopy 5. Small intestine contrast exam	1. Laparotomy + tumour resection	1. Left ovarian dermoid cyst with secondary infection/ abscess 2. Ovarian goitre (Struma ovarii)	Nil, 29 day post-op stay
Okada S. et al., A case of dermoid cyst of the ovary with malignant transformation complicated with small intestinal fistula formation, 2005 (32)	54	1. GI - abdominal pain, watery diarrhoea, abdominal distension	1. CT scan 2. AXR	1. Laparotomy + tumour resection + Left adnexectomy + hysterectomy + omental resection.	1. Ovarian dermoid cyst 2. Malignant transformation	Patient died 10 months following the operation.
Park H C. et al., Ovarian teratoma presenting as a pedunculated polyp at colonoscopy, 2006 (44)	41	1. GI - Abdominal pain worse during defecation	1. CT scan 2. Colonoscopy	1. Laparotomy + tumour resection + Right salpingoophorectomy + anterior resection with colorectal anastomosis	Benign mature cystic ovarian teratoma	Nil, 5 days post-op stay
Cebesoy, F B. et al., Benign ovarian dermoid cyst complicated with rectal fistula formation: An unusual case, 2009 (45)	30	1. GI - Abdominal pain, purulent diarrhoea, for 2 days	1. USS 2. CT scan 3. Rectosigmoidoscopy	1. Laparotomy + tumour resection + low anterior resection	Benign ovarian dermoid	Nil, 7 days post-op stay, 6 months f/u

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AUTHOR, STUDY TITLE, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY	POST-OP AND F/U
Arias-Garzón W. et al., Mature solid teratoma of ovary with intrarectal protrusion: A case report; [Teratoma sólido maduro de ovario con protrusión intrarrectal. Informe de un caso], 2009 (46)	54	1. GI - Abdominal pain before defecation tenesmus, and PR bleeding 6 months 1. GI - abdominal pain, altered bowel habit, haematochezia, occasional pus in stool.	1. CT scan 2. Rectoscopy	1. Laparotomy + tumour resection + oophorectomy + repair of bowel defect	Mature ovarian teratoma	N/A
Wickremasinghe D. et al., A benign teratoma of the ovary fistulating into the rectum, 2010 (47)	39	1. GI - abdominal pain, progressive constipation 2. fever 3. weight loss for 6 months.	1. CT scan 2. AXR	1. Laparotomy + left oophorectomy + tumour resection + anterior resection and primary anastomosis. 1. Laparotomy + tumour resection + end colostomy	Mature cystic ovarian teratoma	N/A
Chong H.M.D. et al., A giant gas-filled abdominal mass in an elderly female: A case report, 2011 (33)	85	1. GI - 5 years of abdominal pain, passing hairs in stool for 18 months. 2. GU - passing hair in urine, increased urine frequency for 4 months	1. USS 2. CT scan 3. Colonoscopy	1. Laparotomy + tumour resection + left oophorectomy + primary repair/ closure of bladder and colon.	1. Mature cystic ovarian teratoma 2. Poorly differentiated SCC 1. Mature ovarian teratoma	1. DVT day 5 post op, 4 moths post-op stay 2. Peritoneal carcinomatosis 3. Died N/A, 6 months f/u
Singh R. et al., Rectal fistula due to ovarian teratoma, 2012 (11)	23	1. GI - 3 months abdominal pain	1. USS 2. CT scan	1. Laparoscopy converted to laparotomy + tumour resection + left oophorectomy	Left mature cystic ovarian teratoma	N/A, 12 days post-op stay, 12-month f/u
Von-Walter A R. et al., Benign cystic ovarian teratoma with a fistula into the small and large bowel, 2012 (48)	25	1. GI - 1 day abdominal pain, nausea.	1. CT scan	1. Laparotomy + tumour resection	Mature cystic ovarian teratoma	N/A, 14 days post-op stay, 6 weeks f/u
Conway A Z. et al., A dermoid cyst fistulating with the transverse colon, 2012 (49)	26	1. GI - abdominal pain, mild constipation over 4 months	1. CT scan 2. Colonoscopy	1. Laparotomy + Left oophorectomy + tumour resection	1. Mature cystic ovarian teratoma 2. Well differentiated SCC	N/A, 7 days post-op stay
Yi H et al., Colonoscopic finding of an unusual sigmoid colon fistula caused by ovarian teratoma, 2015 (34)	42	1. GI - abdominal pain, passage of sebaceous material with stool, haematochezia for 2 weeks.	1. GI - abdominal pain, mild constipation over 4 months	1. Laparotomy + en bloc resection of the sigmoid colon + left oophorectomy + dissection of left para-aortic and pelvic lymph nodes	1. Mature cystic ovarian teratoma 2. Well differentiated SCC invading	1. CT at 6 Months- Metastasis 2. Died 1.5 years after surgery
Min K W. et al., Squamous cell carcinoma arising in a mature cystic teratoma exposed through a colo-ovarian fistula, 2015 (50)	67	1. GI - abdominal pain, passage of sebaceous material with stool, haematochezia for 2 months	1. USS 2. CT scan	1. Laparoscopy + adhesiolysis, bilateral ovarian cystectomy + primary repair of rectal fistula	Benign ovarian dermoid cyst	Nil 12 days post-op stay, 6 months f/u

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AUTHOR, STUDY TITLE, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY	POST-OP AND F/U
Chang H S Y. et al., An Unusual Cause of Rectal Invasion, 2016 (26)	37	1. GI - 8-month of haemorrhous anal discharge.	1. CT scan 2. Colonoscopy	1. Diagnostic laparoscopy + robotic-assisted + left salpingoophorectomy + tumor resection + proctotomy + fistulectomy + primary repair of defects	Mature cystic ovarian teratoma	N/A
Kizaki, Y. et al., Ovarian mature cystic teratoma with fistula formation into the rectum: a case report, 2016 (5)	43	1. GI - diarrhoea 2. Flulike symptoms, fever	1. USS 2. CT scan 3. Colonoscopy 4. MRI	1. Laparotomy + left salpingoophorectomy.	Left mature cystic ovarian teratoma	Nil, 9 day post-op stay
Chan, V.W.T. et al., Mature cystic teratoma eroding into the colon, 2016 (51)	47	1. GI - abdominal pain, per rectal bleeding	1. CT scan 2. Colonoscopy 3. MRI	1. Laparotomy + tumour resection + right oophorectomy + sigmoid resection and primary anastomosis	Mature cystic ovarian teratoma	N/A
Baek, D H. et al., An Ovarian Mature Cystic Teratoma with Colon Involvement, 2016 (52)	58	1. GI- abdominal pain	1. CT scan 2. Sigmoidoscopy	1. Laparoscopy + right salpingoophorectomy + tumour resection + sigmoid resection and primary anastomosis	Mature cystic ovarian teratoma	N/A
Jimenez J. et al., Rectal fistulization of a mature cystic teratoma, a rare complication; [Fistulización a recto de un teratoma quístico maduro, una rara complicación], 2018 (25)	39	1. GI - abdominal pain, distention	1. USS 2. CT scan 3. Colonoscopy 4. MRI	1. Laparotomy + tumour resection + pelvic exenteration with vaginal preservation + ileocolic + colorectal anastomosis	1. Endometriosis in both ovaries 2. Right mature ovarian teratoma	Nil, 11-day post-op stay
Chauhan R S. et al., CT depiction of ovarian dermoid showing spontaneous fistulous communication with small bowel, 2018 (53)	55	1. GI - abdominal pain, passage of cheese like contents and hair with stool	1. USS 2. CT scan	1. Laparotomy + tumour resection + primary closure of ileal perforation	1. Benign cystic teratoma	N/A
Dixon F et al., Obstructive endometriosis of the sigmoid colon with fistulation into ovarian teratoma, 2019 (54)	44	1. GI - Tenesmus, change in bowel habit, 2. Weight loss for 6 months	1. CT scan 2. Colonoscopy 3. MRI	1. Laparotomy + tumour resection + Hartmann's procedure	1. Mature cystic ovarian teratoma 2. Extensive endometriosis	Nil , 4 day post op stay
Esterson Y B. et al., Ovarian dermoid cyst complicated by small bowel obstruction, entero-ovarian fistula formation, and malignant degeneration, 2019 (35)	59	1. GI - Palpable abdominal mass, 2. Fever, tachycardia	1. CT scan	1. Laparotomy + tumour resection + hysterectomy + right salpingoophorectomy + omentectomy + primary small bowel anastomosis	1. Dermoid cyst 2. Malignant degeneration to poorly differentiated SCC	N/A
Muhammad H T Y. et al., Ovarian Dermoid Cyst presenting with unusual complaint of hair coming out of the anal orifice - A case report, 2020 (55)	31	1. GI - Hair coming out of the anal orifice	1. USS 2. CT scan	1. Laparotomy + tumour resection + right oophorectomy + primary repair of the bowel wall	1. Benign mature ovarian teratoma	Nil, 4-day post-op stay, 1 year f/u
Rzaca M. et al., Laparoscopic treatment of a mature teratoma with a fistula into the rectum - a NOTES technique, 2020 (28)	49	1. GI - abdominal pain, haemodiarthoea, discharge of hair in stools	1. CT scan 2. Colonoscopy	1. Laparoscopy + hysterectomy + tumour resection + fistulectomy + resection + anastomosis	1. Left mature ovarian teratoma	Nil

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AUTHOR, STUDY TITLE, YEAR	AGE (YEARS)	PRESENTING ISSUE	IMAGING	MANAGEMENT	HISTOLOGY	POST-OP AND F/U
Abduljabbar, A. et al., Malignant degeneration of mature cystic teratoma of the ovary with small bowel metastasis incidental serous cystadenoma collision tumor of the right ovary, 2021 (36)	45	1. GI - abdominal pain and distention for 2 months, vomiting 2. Fever, night sweats, unintentional weight loss	1. CT scan	1. Laparotomy + bilateral oophorectomy + tumour resection + adhesiolysis	1. Right mature ovarian teratoma 2. SCC with metastasis to the abdominal wall and the small bowel. 3. Right serous Cystadenoma 4. Left mature ovarian teratoma	1. Small bowel fistula with abdominal wall 2. CT scan- tumour recurrence
Neha Agrawal. et al., Ileo-dermoid Fistula: A rare presentation of ovarian dermoid, 2024 (37)	55	1. GI - 3 months abdominal pain, lump in abdomen, loss of appetite, vomiting 2. weight loss, fever for 1 day	1. USS 2. CT scan	1. Laparotomy + hysterectomy + salpingoophorectomy + bowel resection + primary anastomosis	1. Mature cystic ovarian teratoma 2. SCC	1. Surgical site infection, 2. 16 day post-op stay, 3. Died due to recurrence of malignancy
Naho Tokunaga, et al., Laparoscopic treatment of an ovarian teratoma with perforation of the small bowel: A case report, 2025 (29)	30	1. GI- Lower abdominal pain, Bloody stool 2. Fever	1. CT scan 2. USS 3. MRI	1. Laparoscopy + adhesiolysis + small bowel resection + right salpingo-oophorectomy	1. Right ovarian mature cystic teratoma	1. Paralytic ileus & localized peritonitis 10 days post op 2. 27 day post op stay 3. 69 day post- p clinically asymptomatic
Kirengo T. et al, Ovarian Teratoma with Bowel Fistula managed non-operatively, 2025 (16)	18	1. GI- Right & left iliac fossa pain, rectal bleeding, diarrhoea 2. Gynae- Vaginal discharge	1. USS 2. CT Scan 3. MRI 3. Sigmoidoscopy	1. Non-operatively	1. Mature ovarian teratoma	1. 21 months post op f/u

AXR, Abdominal X-ray; N/A, Not available/Not reported/missing; Nil, no abnormality/significant findings; F/U, Follow-up; Hx, History; SCC, Squamous cell carcinoma.