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Pregnancy Outcomes in Women with Crohn's Disease: A Literature Review

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Abstract

Background

Crohn's disease (CD) is a chronic inflammatory bowel disease commonly diagnosed in women of reproductive age. While treatments have improved over the years, pregnancy in women with

CD still presents certain challenges. Recent findings suggest a strong link between disease activity and pregnancy outcomes.

Aim

To summarize contemporary evidence on pregnancy in women with CD, focusing on pathophysiological and clinical considerations, maternal outcomes, fetal and neonatal outcomes, disease monitoring during pregnancy, and selected high-risk clinical scenarios.

Material and Methods

This narrative review included articles published between 2015 and 2025 on pregnancy outcomes in women with CD. Relevant publications were identified using keywords such as CD, IBD, pregnancy, maternal and neonatal outcomes, disease activity, and monitoring. The analysis drew on clinical guidelines, observational studies, and narrative reviews, with no formal systematic review or meta-analysis applied.

Results

Disease activity at conception and during pregnancy emerged as the strongest determinant of pregnancy outcomes. Active disease was linked to higher risks of exacerbation, preterm birth (PTB), impaired fetal growth, and complications. Pregnancies conceived in remission were more often stable, with outcomes resembling those of the general population. Improvements over time reflect better disease monitoring, therapy, and multidisciplinary management.

Conclusions

Pregnancy outcomes in women with CD are primarily influenced by disease activity, not the diagnosis itself. Preconception counseling, remission, and structured monitoring are essential for optimizing maternal and fetal outcomes.

Key words: Crohn's disease, pregnancy, disease activity, maternal outcomes, fetal outcomes, neonatal outcomes.

1. Introduction

CD is a chronic IBD characterized by relapsing intestinal inflammation, systemic immune activation, and a heterogeneous clinical course [1,2]. The disease is commonly diagnosed in adolescence and early adulthood, overlapping with peak reproductive age, which makes pregnancy a clinically relevant and increasingly frequent consideration in women with CD [3,4]. Advances in medical therapy, improved disease monitoring, and multidisciplinary care have substantially altered the reproductive outlook for affected women, allowing many to plan and complete pregnancy safely [3,5]. Earlier observational studies described pregnancy in women with CD as

high risk, reporting increased rates of disease exacerbation, PTB, impaired fetal growth, and operative delivery compared with the general obstetric population [2,6]. More recent population-based analyses and real-world cohort studies, however, demonstrate that these risks are not uniform and are strongly influenced by disease activity, nutritional status, prior surgical history, and overall disease control [7–9]. In particular, active disease at conception and during gestation has consistently been associated with adverse maternal and perinatal outcomes, whereas pregnancies conceived in remission often follow a stable clinical course with outcomes approaching those of women without IBD [4,10,11].

Over the past decade, international guidelines and consensus statements have emphasized a shift in clinical focus from the diagnosis of CD itself toward sustained inflammatory control as the principal modifiable determinant of pregnancy outcomes [3,12]. Improvements in monitoring strategies, including non-invasive biomarkers and pregnancy-adapted imaging, together with broader adoption of treat-to-target approaches, have further contributed to improved outcomes [13,14]. Despite this expanding evidence base, uncertainties remain in specific clinical scenarios, such as pregnancy with active disease at conception, prior intestinal surgery, or severe disease complicated by nutritional compromise [15,16]. An updated synthesis integrating contemporary evidence is therefore warranted to support evidence-based care and optimize pregnancy outcomes in women living with CD.

2. Pathophysiological and clinical considerations

2.1 Systemic inflammation and immune dysregulation in Crohn's disease during pregnancy

CD is a chronic inflammatory disorder characterized by persistent systemic immune activation that extends beyond the gastrointestinal tract, with important implications during pregnancy. In active disease, sustained upregulation of pro-inflammatory immune pathways is observed, including increased circulating concentrations of cytokines such as tumor necrosis factor-α (TNF-α), interleukin-6 (IL-6), and interleukin-1β, contributing to a generalized inflammatory milieu . Successful pregnancy requires precisely coordinated immunological adaptation to permit maternal tolerance of the semi-allogeneic fetus. In women with active CD, ongoing inflammatory signaling may interfere with this adaptive immune balance, promoting a relative dominance of pro-inflammatory responses over regulatory mechanisms. Such immune disequilibrium has been suggested to disrupt maternal–fetal immune crosstalk and physiological vascular adjustment, which may help explain the higher incidence of obstetric and fetal complications reported in women with uncontrolled disease [1,3]. Conceptually, pregnancy in women with CD can be viewed as a physiological state superimposed on a background of chronic systemic inflammation. Contemporary models of chronic disease suggest that cumulative inflammatory burden, rather than pregnancy per se, determines susceptibility to adverse outcomes once compensatory mechanisms are exceeded [5]. Accordingly, pregnancy may magnify the clinical consequences of pre-existing immune activation rather than act as an independent driver of disease activity. Taken together, these mechanisms support the clinical observation that disease activity at conception and during gestation is a principal determinant of maternal and fetal outcomes. They further explain why therapeutic strategies aimed at suppressing systemic inflammation remain central to optimizing pregnancy outcomes in women with CD [3].

2.2 Placental function, vascular adaptation, and fetal growth in Crohn's disease

Normal pregnancy relies on effective placental development and coordinated vascular remodeling to ensure adequate uteroplacental perfusion and support fetal growth. In the context of active CD, chronic systemic inflammation may adversely influence these placental processes through a combination of inflammatory, endothelial, and metabolic effects. Pro-inflammatory mediators implicated in CD, including tumor necrosis factor-α and interleukin-6, have been linked to endothelial dysfunction and altered angiogenic signaling, processes that are essential for normal placental vascular remodeling. Disruption of these pathways may impair placental blood flow and nutrient exchange, providing a biological explanation for the increased rates of fetal growth restriction, low birth weight (LBW), and PTB observed in pregnancies complicated by active disease [1,7]. Beyond inflammatory signaling, nutritional compromise associated with CD represents an additional placental stressor. Reduced maternal energy availability, iron deficiency, and inadequate folate and micronutrient stores have been associated with suboptimal placental development and restricted fetal growth, particularly in women with poorly controlled intestinal disease [6,7]. These factors may act in concert with inflammation, further amplifying the risk of adverse fetal outcomes. *Overall,* placental dysfunction in CD appears to result from the combined effects of inflammatory burden, nutritional insufficiency, and impaired vascular adaptation, rather than from pregnancy itself. Current clinical frameworks therefore emphasize that effective disease control before and during gestation can attenuate these mechanisms, supporting healthier placental function and more favorable fetal development [3,5].

2.3 Nutritional status and micronutrient deficiencies in Crohn's disease during pregnancy

Adequate maternal nutritional status is a key determinant of healthy pregnancy outcomes and is particularly relevant in women with CD. Chronic intestinal inflammation, malabsorption, reduced dietary intake, and increased metabolic demands place pregnant women with CD at increased risk of macro- and micronutrient deficiencies, particularly when disease activity is present [6,7]. Iron, folate, vitamin B12, and other micronutrient deficiencies are commonly observed in women with CD and may worsen during pregnancy. These abnormalities have been linked to maternal anemia, impaired fetal growth, and adverse perinatal outcomes, including LBW and small for gestational age (SGA) infants, especially in the context of insufficient disease control [6,7]. Active intestinal inflammation further contributes to nutritional compromise by impairing nutrient absorption and increasing inflammatory catabolism. As a consequence, nutritional status closely mirrors disease activity, with poorly controlled CD amplifying the risk of both maternal undernutrition and adverse fetal outcomes. Conversely, pregnancies conceived and maintained in remission are more often characterized by stable nutritional parameters and more favorable growth outcomes [3,7]. Current clinical guidelines emphasize routine assessment of nutritional status and targeted supplementation as integral components of care in pregnant women with CD. Early recognition and correction of deficiencies, together with effective suppression of intestinal inflammation, are therefore considered central to optimizing maternal and fetal health throughout pregnancy [3].

3. Maternal outcomes in Crohn's disease

Maternal outcomes in pregnancies affected by CD reflect both obstetric factors and the underlying inflammatory disease. Across studies and guideline documents, current disease activity is repeatedly highlighted as the factor most closely linked to the clinical course. The sections below summarize maternal outcomes reported in the literature: disease exacerbation, PTB, mode of delivery, pregnancy-related complications, and the need for surgical intervention.

3.1. Risk of disease exacerbation during pregnancy

The risk of CD exacerbation during pregnancy depends largely on disease activity at conception. Narrative reviews and cohort data describe a stable course in most women who enter pregnancy in remission, whereas active disease before conception is more often followed by persistent activity or worsening during gestation [2,4,6]. Contemporary real-world cohorts report similar patterns, with the most favorable disease trajectories seen when remission is achieved prior to conception [10]. Overall, the disease course during pregnancy appears to mirror the preconception disease state.

3.2. Risk of preterm birth

PTB is one of the most frequently reported adverse outcomes in population-based and observational studies of IBD pregnancies, including CD. Compared with the general obstetric population, these studies frequently report higher PTB rates after adjustment for clinical and obstetric factors [9]. A 20-year nationwide analysis suggests that PTB rates in IBD pregnancies have decreased over time, although risk remains higher than in non-IBD populations [8]. Across cohorts and reviews, inadequate disease control is repeatedly linked to higher PTB risk. Both tertiary-centre data and guideline-based discussions emphasize that active disease, particularly around conception and during pregnancy, acts as an important modifier of perinatal risk [3,4,11]. In practical terms, this supports targeting remission before conception and maintaining effective disease control throughout gestation.

3.3. Mode of delivery and cesarean section

Several reviews and observational studies have historically reported higher cesarean section rates among women with CD compared with the general obstetric population. This tendency has been attributed less to the diagnosis itself and more to clinical considerations related to disease course, particularly in the presence of active perianal disease or prior anorectal complications, where surgical delivery is often favored to reduce maternal risk [2–4,6]. Longitudinal nationwide analyses indicate that, despite a general increase in cesarean section rates in the overall obstetric population, the excess risk previously associated with CD has diminished over time. Data from nationwide cohorts suggest that the relative contribution of CD to cesarean delivery has declined, likely reflecting improved disease control and greater adherence to guideline-based obstetric management [8,9].

Contemporary real-world cohort studies further demonstrate that, outside specific clinical indications, cesarean section rates in women with CD may be comparable to those observed in the general obstetric population [10]. Consistent with these findings, current clinical guidelines emphasize that uncomplicated CD does not constitute an indication for cesarean delivery. Instead, mode of delivery should be individualized, guided primarily by standard obstetric indications and current disease activity, with particular attention to the presence or absence of active perianal disease [3,6,17].

3.4. Hospitalization and obstetric complications

Women with CD are at increased risk of obstetric complications during pregnancy compared with the general obstetric population, particularly in the context of active disease. Population-based analyses indicate an increased risk of selected obstetric complications, including hypertensive disorders of pregnancy (such as preeclampsia/eclampsia) and premature rupture of membranes, alongside higher utilization of hospital-based obstetric care [8,9]. Observational studies and narrative reviews indicate that pregnancies complicated by CD are associated with additional adverse outcomes, **including fetal growth restriction and increased obstetric interventions; associations with gestational diabetes have been reported in some cohorts,** with disease activity emerging as an important modifying factor [7,9]. Although longitudinal data suggest that the magnitude of excess risk has declined over time, CD remains associated with a persistently higher risk profile compared with pregnancies unaffected by IBD [8]. Real-world cohort data support the observation that hospitalizations and adverse pregnancy-related outcomes occur more frequently among women with active disease, whereas women who conceive in remission generally experience a more favorable clinical course [10]. Collectively, these findings underscore the importance of maintaining disease control throughout pregnancy to reduce maternal morbidity. Pregnancy loss has also been reported as an adverse obstetric outcome in IBD cohorts. Disease activity is frequently discussed as a potential modifier of risk; however, findings remain heterogeneous across studies [4,17].

3.5. Surgical intervention during pregnancy

Surgical intervention for CD during pregnancy is uncommon but may be unavoidable in selected cases of severe or complicated disease. A nationwide survey demonstrated that surgery during pregnancy, while rare, can be performed when clinically indicated, with outcomes largely dependent on disease severity and the timing of intervention rather than pregnancy itself [15]. Individual case reports further illustrate that pregnancy can be successfully managed even in the context of severe CD complicated by intestinal failure requiring long-term parenteral nutrition, highlighting the feasibility of individualized, multidisciplinary care in extreme clinical

scenarios [16]. In addition, pregnancies in women with a history of CD–related surgery, including intestinal stomas, require individualized obstetric planning and close multidisciplinary follow-up [4].

4. Fetal and neonatal outcomes

4.1 Low birth weight

LBW is one of the most frequently reported adverse fetal outcomes in pregnancies among women with CD. Population-based and observational studies indicate that infants born to mothers with CD have a higher likelihood of LBW compared with the general obstetric population, although the magnitude of this association varies across cohorts and study designs [7,9]. Disease activity during pregnancy is a key determinant of LBW risk. Reviews and observational data consistently suggest that active CD is associated with impaired fetal growth, whereas pregnancies conceived and maintained in remission are more likely to result in normal birth weight outcomes [6,7]. Proposed contributing mechanisms include systemic inflammation and disease-related nutritional impairment. Longitudinal nationwide analyses indicate that fetal growth outcomes in pregnancies complicated by IBD, including CD, have improved over time, with more recent cohorts showing more favorable birth weight profiles than earlier periods [8].

4.2 Small for gestitational age

SGA is used as an indicator of impaired fetal growth in women with CD. Evidence from narrative reviews and observational studies indicates that SGA and related growth abnormalities are more commonly reported in pregnancies complicated by active CD, compared with those conceived and maintained in remission [4,7]. Disease activity and maternal nutritional status appear to be important determinants of SGA risk. Active intestinal inflammation, malabsorption, and inadequate gestational weight gain have been associated with impaired fetal development, whereas remission is generally linked to more favorable growth outcomes [4,6]. Population-based as well as real-world cohort studies further support an association between active disease and impaired perinatal growth outcomes, including intrauterine growth restriction and related anthropometric measures, although SGA is not consistently reported as a standalone endpoint [9,11]. Longitudinal analyses suggest that growth-related outcomes have improved over time among pregnancies complicated by IBD, including CD [8].

4.3. Preterm birth

Population-based analyses from IBD cohorts have reported an increased risk of preterm delivery among women with CD compared with non-IBD populations; however, results vary across settings and cohorts, and some studies describe PTB rates comparable to matched controls[1,4,6]. Disease activity during pregnancy emerges as the principal determinant of PTB risk. Narrative reviews and cohort analyses record that active CD is associated with an increased risk of preterm delivery, whereas pregnancies conceived and maintained in remission are more often

characterized by term birth and favorable neonatal outcomes [2,4,11]. These findings support the view that excess PTB risk in CD is primarily related to inflammatory disease burden rather than pregnancy itself. Longitudinal analyses further suggest an improvement in PTB rates over time among pregnancies complicated by IBD disease, including CD, likely reflecting advances in disease control, multidisciplinary care, and obstetric management [8]. Nevertheless, PTB remains a clinically relevant outcome, particularly in pregnancies complicated by active disease, underscoring the importance of sustained remission throughout gestation.

4.4 Congenital anomalies

The risk of congenital anomalies has been extensively evaluated in offspring of women with CD; however, available evidence does not support a consistent disease-specific increase. Narrative reviews, cohort studies, and population-based analyses generally report comparable rates of congenital abnormalities, although outcomes may vary with clinical factors such as disease activity [2,4,17]. Prospective data from the ECCO EpiCom study showed no statistically significant difference in congenital abnormality rates between women with CD and healthy controls, with maternal age and smoking identified as relevant modifiers of congenital anomaly risk in adjusted analyses [18]. Real-world cohort and registry data do not indicate an increased risk of congenital anomalies with commonly used IBD therapies, particularly when disease is well controlled [19]. Consistent with these observations, international consensus statements emphasize that CD per se is not a strong independent risk factor for congenital anomalies, and that optimal disease control before and during pregnancy remains the key determinant of favorable outcomes [12].

4.5 Postnatal and early neonatal outcomes

Postnatal and early neonatal outcomes in infants born to women with CD are generally favorable when maternal disease is well controlled. Population-based and real-world cohort studies report higher rates of neonatal complications, including higher rates of neonatal intensive care unit admission and early neonatal morbidity, among infants born to mothers with CD or IBD; however, these associations are largely mediated by PTB and LBW rather than CD itself [8,9,11]. Registry data and narrative reviews do not demonstrate a consistent increase in severe neonatal complications or mortality attributable to CD, with disease activity and overall pregnancy complexity identified as the main determinants of postnatal risk [17,19]. Overall, neonatal outcomes are most favorable in pregnancies conceived and maintained in remission, underscoring the importance of effective disease control throughout gestation [2,4].

5. Comparison: Crohn's disease vs ulcerative colitis

Although CD and UC are commonly grouped under IBD, accumulating evidence suggests that pregnancy outcomes may differ between these conditions. Variations in disease distribution, complication profiles, and surgical history may translate into distinct obstetric and perinatal risks. Large population-based studies and real-world cohorts enable comparative analyses of maternal and fetal outcomes in CD and UC, with disease activity considered a key contextual factor.

5.1. Differences in preterm birth risk between Crohn's disease and ulcerative colitis

Comparative analyses from population-based studies and real-world cohorts suggest that differences in PTB risk between CD and UC are generally modest and inconsistent across populations. While some studies report slightly higher PTB rates in CD, others demonstrate comparable risks between the two conditions after adjustment for clinical and obstetric factors [8,9]. Taken together, available data indicate that disease activity during pregnancy consistently emerges as a stronger determinant of PTB risk than IBD subtype. Active disease is associated with an increased likelihood of preterm delivery in both CD and UC, whereas pregnancies conceived and maintained in remission are more often carried to term regardless of diagnosis [10,11].

5.2. Differences in cesarean section risk between Crohn's disease and ulcerative colitis

Several studies report higher cesarean section rates in women with CD compared with those with UC, although the magnitude of this difference varies across cohorts. Elevated cesarean rates in CD are most consistently observed in the presence of active perianal disease, where surgical delivery is often favored to reduce the risk of obstetric and anorectal complications [3,4]. Population-based and real-world cohort studies indicate that, outside specific clinical indications such as active perianal disease, cesarean section rates in CD and UC are broadly comparable after adjustment for obstetric factors and disease activity [8,10]. Current guidelines emphasize that IBD subtype alone should not determine mode of delivery, and that decisions should be individualized based on obstetric indications and current disease status [3].

5.3. Differences in disease activity during pregnancy between Crohn's disease and ulcerative colitis

Available evidence indicates that pregnancy-related patterns of disease activity are broadly similar in CD and UC. Narrative reviews and cohort studies consistently show that the clinical course during gestation is primarily determined by disease activity at the time of conception. Women who enter pregnancy in remission are more likely to maintain disease stability, whereas active disease at conception is associated with ongoing activity or exacerbation during pregnancy in both CD and UC [2,4]. Findings from real-world cohorts further suggest that, when baseline disease activity is taken into account, no consistent differences in overall flare rates are observed between

CD and UC during pregnancy. Comparative analyses indicate that the risk of disease worsening is largely driven by preconception activity rather than IBD subtype itself [10,11]. Consequently, apparent differences between CD and UC observed in unadjusted analyses tend to attenuate after adjustment for relevant clinical factors. Population-based studies similarly suggest that pregnancy does not differentially influence disease activity across IBD subtypes, reinforcing the central role of effective disease control before and during gestation [8].

5.4. Summary of Crohn's disease vs ulcerative colitis: comparisons in contemporary cohorts

Across large population-based analyses and real-world cohorts, differences in pregnancy outcomes between CD and UC appear modest and context-dependent. With respect to PTB, studies report either slightly higher rates in CD or broadly comparable risks after adjustment for clinical and obstetric characteristics, indicating that disease subtype alone is not a consistent predictor across populations [8,9]. For mode of delivery, higher cesarean section rates are more consistently reported in CD, largely reflecting specific clinical scenarios such as active perianal disease rather than the diagnosis itself. When these indications are absent, cesarean delivery rates in CD and UC appear comparable after adjustment for disease activity and obstetric factors, in line with guideline recommendations supporting individualized decision-making [3,4,8,10]. Overall, comparative evidence suggests that patterns of disease activity during pregnancy are similar in CD and UC once baseline disease status is accounted for. Across studies, remission at conception is associated with a more stable disease course during gestation, whereas active disease predicts ongoing activity or worsening, underscoring disease control as the main determinant of pregnancy course across IBD subtypes [2,4,8,10,11].

6. Monitoring of Crohn's disease in pregnancy

Monitoring of CD during pregnancy is essential, as disease activity is the main modifiable determinant of maternal and fetal outcomes. *Current evidence supports a structured monitoring strategy that combines non-invasive biomarkers, imaging modalities, and selectively applied endoscopy to assess inflammatory activity while accounting for physiological changes of pregnancy* [3,13,14]**.** *Clinical guidelines recommend individualized, multidisciplinary monitoring, with the overarching aim of maintaining disease remission throughout gestation* [3,12]**.**

6.1 Biomarkers: C-reactive protein and fecal calprotectin

Non-invasive biomarkers play an important role in monitoring CD during pregnancy, allowing assessment of inflammatory activity without fetal risk. Among available markers, C-reactive protein (CRP) and fecal calprotectin (FC) are the most commonly used during pregnancy [13,14]. *Guidelines support the combined use of CRP and fecal calprotectin within a broader monitoring framework, with greater emphasis on serial measurements and trends rather than single values* [3,12].

6.2 Intestinal ultrasound

Intestinal ultrasound is an increasingly used imaging modality for monitoring CD during pregnancy, as it is non-invasive and free of ionizing radiation. Its favorable safety profile allows repeated assessment of disease activity throughout pregnancy without fetal exposure [3,13,14]. Ultrasound can provide clinically relevant information on bowel wall thickness and inflammatory changes, particularly when interpreted alongside clinical findings and biomarker results. Recent CD-focused reviews describe a growing role for intestinal ultrasound within structured monitoring pathways, especially in centers with appropriate expertise, where it may support longitudinal assessment and maintenance of remission [14,20].

6.3 Magnetic resonance imaging without gadolinium

Magnetic resonance imaging (MRI) without gadolinium contrast is considered an appropriate cross-sectional imaging modality for assessing CD during pregnancy when additional anatomical detail is required. Non-contrast MRI is regarded as safe in all trimesters and is particularly useful for evaluating small bowel involvement, penetrating complications, or overall disease extent when ultrasound findings are inconclusive [3,13,14]**. Current recommendations advise against routine use of gadolinium-based contrast agents during pregnancy, reserving MRI without contrast for selected clinical situations in which the anticipated diagnostic benefit outweighs potential risks.** Within multidisciplinary care settings, MRI complements biomarkers and ultrasound by supporting informed clinical decision-making while minimizing fetal exposure [3,12]**.**

6.4 Endoscopy

Endoscopy is not routinely performed for monitoring CD during pregnancy but may be indicated in selected clinical situations when non-invasive assessments are inconclusive and the results are expected to influence management. When clinically justified, lower gastrointestinal endoscopy can be performed during pregnancy, provided that indication, timing, and procedural conditions are carefully considered [3,13,14]. When required, endoscopy is generally considered safest when performed with minimal or no sedation and with appropriate obstetric support. Decisions regarding endoscopy should be individualized and made within a multidisciplinary care framework, balancing diagnostic benefit against potential maternal and fetal risks [3,12].

6.5 Models of monitoring during pregnancy

Current evidence supports an integrated approach to disease monitoring during pregnancy in women with CD, combining clinical assessment with biomarkers and imaging instead of reliance on isolated measures. Contemporary guidelines promote a treat-to-target strategy focused on achieving and maintaining remission before conception and throughout pregnancy [3,12]. Monitoring intensity should be tailored to disease activity, prior disease course, and stage of pregnancy, and coordinated within a multidisciplinary team involving gastroenterology and

obstetric care. Such approaches allow early identification of disease activity and timely treatment adjustment while limiting maternal and fetal risk.

7. Special situations in pregnancy complicated by Crohn's disease

7.1 Active disease at conception

Active CD at conception is consistently identified as a major risk factor for adverse maternal and fetal outcomes. Reviews, cohort studies, and clinical guidelines indicate that women with active disease at conception are more likely to experience persistent activity or exacerbation during pregnancy than those in remission [2–4]. Disease activity at conception is also associated with higher rates of PTB, impaired fetal growth, and obstetric complications, whereas pregnancies conceived in remission more often follow a stable course with favorable outcomes [7,8,10]. These observations reinforce the importance of achieving remission prior to conception.

7.2 Pregnancy after intestinal surgery

Pregnancy in women with a history of CD-related intestinal surgery, including bowel resection or stoma formation, requires individualized assessment and coordinated care between gastroenterology and obstetrics. Available data indicate that prior intestinal surgery does not preclude successful pregnancy; however, these cases may involve greater obstetric complexity and therefore benefit from closer clinical monitoring [4,6]. A nationwide survey on surgical intervention during pregnancy showed that surgery for CD is rare but feasible when clinically indicated, with outcomes primarily influenced by disease severity and timing of intervention rather than by pregnancy itself [15]. Current guidelines highlight the importance of individualized obstetric planning and close coordination between gastroenterology, surgical, and obstetric teams in women with a history of CD-related surgery [3].

7.3 Severe Crohn's disease and nutritional compromise

Severe CD complicated by malnutrition or intestinal failure represents a rare but high-risk clinical scenario in pregnancy, **in which** disease-related malabsorption and poor nutritional status have been associated with impaired fetal growth and increased obstetric risk [6,7]. Case-based evidence indicates that successful pregnancy is possible even in women with severe CD requiring long-term parenteral nutrition, provided that care is highly individualized and delivered within a multidisciplinary framework [16]. These reports underscore the importance of intensive nutritional support, close disease monitoring, and coordinated obstetric care in achieving favorable outcomes in extreme clinical circumstances.

7.4 Clinical implications of special situations

Across these special clinical scenarios, disease activity remains the dominant determinant of pregnancy course and outcomes. Contemporary guidelines and reviews consistently emphasize that optimal disease control, individualized risk assessment, and multidisciplinary management are central to improving maternal and fetal outcomes, particularly in high-risk or atypical pregnancies complicated by CD [3,12].

8. Practical implications for clinicians

8.1 Preconception counseling: remission as the primary goal

Effective preconception counseling is a cornerstone of care for women with CD planning pregnancy. Consistent evidence demonstrates that remission at conception is the strongest predictor of favorable maternal and fetal outcomes, whereas active disease is associated with higher risks of persistent activity, PTB, and impaired fetal growth [2–4,7]. Preconception care should therefore focus on achieving and maintaining stable remission, optimizing nutritional status, reviewing medication safety, and addressing modifiable risk factors such as smoking. This approach is consistent with broader conceptual frameworks that emphasize proactive disease control and modification of risk factors in chronic inflammatory conditions, underscoring the value of optimizing health status before additional physiological stressors such as pregnancy [5].

8.2 Management of Crohn's disease during pregnancy

Management of CD during pregnancy should prioritize sustained disease control while minimizing maternal and fetal risk. Evidence from international guidelines supports continuation of most maintenance therapies during pregnancy, as uncontrolled inflammation poses a greater threat to pregnancy outcomes than appropriately selected medical treatment [3,4,17]. Clinical decision-making should be individualized, taking into account disease phenotype, prior disease course, and response to therapy, and coordinated within a multidisciplinary gastroenterology–obstetric care team.

8.3 Monitoring strategies and management of disease flares

Regular monitoring throughout pregnancy is essential to detect subclinical disease activity and manage flares promptly. Current recommendations favor an integrated monitoring strategy combining clinical assessment, non-invasive biomarkers, and pregnancy-adapted imaging modalities, rather than reliance on symptoms alone [3,13,14]. From a broader perspective, this proactive monitoring approach reflects contemporary models of chronic disease management that prioritize early identification of disease activity and timely intervention to prevent downstream complications [5]. Early recognition and treatment of flares are critical to reduce the risk of adverse obstetric and neonatal outcomes.

8.4 Decision-making regarding mode of delivery

Mode of delivery in women with CD should be guided primarily by obstetric indications rather than disease diagnosis alone. While cesarean section may be preferred in specific clinical scenarios, such as active perianal disease, uncomplicated CD does not constitute an indication for surgical delivery [3,4]. Collaborative decision-making between obstetric and gastroenterology teams is essential to balance maternal disease considerations with standard obstetric practice.

8.5 Postpartum care and risk of disease relapse

The postpartum period represents a vulnerable phase for disease recurrence and requires continued clinical vigilance. Although many women maintain disease stability after delivery, relapse may occur, particularly in those with active disease during pregnancy or treatment discontinuation [2,4]. Postpartum care should therefore include continued monitoring, timely re-evaluation of maintenance therapy, and coordinated follow-up to support both maternal health and neonatal well-being.

9. Conclusions

Pregnancy outcomes in women with CD are driven primarily by disease activity rather than by the diagnosis itself. Evidence from observational studies, population-based cohorts, and clinical guidelines consistently indicates that remission at conception and sustained disease control throughout pregnancy are key determinants of favorable maternal, fetal, and neonatal outcomes, whereas active disease is associated with increased risks of exacerbation, PTB, impaired fetal growth, and obstetric complications. Many adverse outcomes previously attributed to CD appear to be largely mediated by uncontrolled inflammation, nutritional impairment, and disease-related complications. When inflammatory activity is effectively controlled, pregnancy outcomes in women with CD increasingly resemble those observed in the general obstetric population. Improvements observed in more recent cohorts most likely reflect advances in disease monitoring, optimization of medical therapy, and broader implementation of multidisciplinary care models. Comparative analyses between CD and UC further indicate that, once baseline disease activity is taken into account, differences in pregnancy outcomes between IBD subtypes are generally modest. Clinically, this underscores the importance of effective preconception counseling, treat-to-target strategies aimed at achieving remission, and individualized multidisciplinary management throughout pregnancy, particularly in women with high-risk or complex disease.

Disclosures

Author's contribution:

Conceptualization: MMT, WP, BP;

Methodology: MMT, JAW, BP, LO;

Software: AP, JP, WP;

Validation: AG, AK, NMK;

Formal analysis: MMT, BP, AP;

Investigation: AG, LO, AK;

Resources: JAW, MMT, NMK;

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