Managing Pregnancy in Autoimmune Disease with Fetal Anomaly: Ethical Challenges and Clinical Decisions in a Case of Multiple Sclerosis

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Abstract

Pregnancy in women with multiple sclerosis (MS) complicated by fetal anomalies presents immediate clinical and ethical challenges. MS, a chronic autoimmune disorder of the central nervous system, commonly affects women of reproductive age and necessitates balancing maternal disease stability with fetal safety. This case report, based on retrospective clinical data and a narrative literature review, highlights the complexities of managing such pregnancies. A 27-year-old G5P2A2 woman at 19 weeks' gestation with relapsing-remitting MS, previously treated with methotrexate during the first trimester, was referred for high-risk care following the detection of a membranous ventricular septal defect (VSD) via fetal echocardiography. Despite teratogenic concerns, the pregnancy was continued under multidisciplinary management involving obstetrics, neurology, rheumatology, and fetomaternal cardiology. The outcome was a preterm delivery of a neonate with VSD requiring specialized follow-up, while the mother remained clinically stable without MS relapse. This case underscores the ethical tensions between maternal autonomy, beneficence, non-maleficence, and justice, particularly in navigating reproductive choices amid uncertain neonatal outcomes. Shared decision-making, supported by multidisciplinary counseling, proved essential in guiding care. Clinicians managing high-risk pregnancies in women with autoimmune disease must integrate ethical principles within collaborative frameworks to optimize outcomes for both mother and child.

Keywords: High-Risk Pregnancy, Congenital Anomaly, Ethical Dilemmas, Patient Autonomy, Shared Decision-Making.

INTRODUCTION

Multiple sclerosis (MS) is a chronic autoimmune disorder affecting the central nervous system, with a higher prevalence among women of reproductive age, thereby complicating the therapeutic management of pregnancy in affected individuals (Canibaño et al., 2020). The global prevalence of MS is estimated at approximately 36 cases per 100,000 population, with notably higher rates in Europe and North America, and an incidence among women nearly three times that of men (Shi et al., 2024). Clinically, MS presents in two primary forms: progressive MS, marked by a continuous decline in neurological function, and relapsing-remitting MS, characterized by episodic inflammation and exacerbations of neurological symptoms (Yamout et al., 2024).

Pregnancy occurs in approximately 20–30% of women with MS. Although disease activity typically declines during the second and third trimesters, relapse risk increases significantly, by up to 20–40%, within the first three to six months postpartum (Villaverde & Gonzales, 2022). This pattern is attributed to hormonal and immunological changes that suppress disease activity during pregnancy, followed by immune system reactivation after delivery, which often precipitates recurrence (Houtchens et al., 2018).

Pregnancy in individuals with multiple sclerosis requires meticulous clinical planning to prevent relapses and safeguard the health of both mother and fetus (Graham et al., 2024). Many disease-modifying therapies (DMTs), including immunosuppressants and immunomodulators, are contraindicated during pregnancy due to their teratogenic potential, for instance; fingolimod and teriflunomide, whereas others, such as glatiramer acetate and interferon-β, exhibit more favorable safety profiles. Consequently, therapeutic strategies must be carefully tailored to minimize fetal risk while maintaining maternal disease control (Verberne et al., 2019). Achieving a balance between effective disease management and fetal safety necessitates a multidisciplinary approach involving neurology, obstetrics, perinatology, and, when appropriate, rheumatology.

Beyond its medical complexity, pregnancy in individuals with MS presents significant ethical challenges, particularly when treatment options carry potential risks to the fetus. This analysis employs the four-principle framework, autonomy, beneficence, non-maleficence, and justice, to guide ethical decision-making. Respecting patient autonomy remains paramount, even when navigating evidence-based clinical recommendations. In this context, shared decision-making (SDM) is essential, requiring informed consent, transparent communication, and the alignment of medical guidance with the patient's values and preferences (Zolkefli, 2024).

For clarity, "high-risk pregnancy" in this report refers to any gestation in which maternal or fetal conditions elevate the likelihood of adverse outcomes, thereby requiring enhanced surveillance or specialist involvement. The term grand multigravida denotes a woman who has experienced five or more pregnancies, a factor that may influence both obstetric risk and management strategies. Cases involving both a high-risk obstetric history, such as recurrent miscarriage, and fetal congenital anomalies in the context of MS remain underreported, particularly regarding their ethical implications. This case study aims to highlight the clinical and ethical complexities of managing pregnancy complicated by maternal autoimmune disease and fetal anomalies, with an emphasis on multidisciplinary care and ethically informed

decision-making. It underscores the importance of collaborative care and ethical sensitivity in optimizing outcomes for both mother and fetus.

METHODS

This study presents a case report supplemented by a narrative literature review. To date, only one documented case of pregnancy in a patient with multiple sclerosis (MS) has been identified during the 2024–2025 period. The clinical case was derived from the medical records of a patient treated at Hasan Sadikin Hospital. Retrospective data collection included patient history, physical examination findings, laboratory and imaging results (including MRI), diagnosis, treatment, and clinical outcomes. Formal ethical clearance was not required for the publication of this case. However, the authors confirm that written informed consent was obtained from the patient. Patient confidentiality and anonymity were rigorously maintained throughout the reporting process.

The authors declare no conflicts of interest related to this work. To support the analysis and discussion of the case, a literature review was conducted using databases including PubMed, Scopus, and Google Scholar. Relevant articles were identified using keywords such as “Multiple Sclerosis,” “Ethical Dilemmas,” “High-Risk Pregnancy,” and “Shared Decision-Making.” Inclusion criteria encompassed articles published within the past five years that addressed topics pertinent to the presented case. All retrieved data were analyzed descriptively and compared with current clinical guidelines and the latest evidence-based literature to highlight diagnostic challenges, management strategies, and associated clinical and ethical considerations.

RESULTS

A 27-year-old woman, gravida 5 para 2 abortus 2 (grand multigravida), presented to the emergency department at 13 weeks and 4 days’ gestation with acute neurogenic pain and a recent syncopal episode. She reported severe lower back pain radiating to the abdomen and left leg, accompanied by dizziness, paresthesia, and progressive weakness predominantly affecting the left side of her body. Her medical history included autoimmune spondyloarthritis, for which she was under rheumatology care and receiving methotrexate 15 mg weekly. Upon confirming her pregnancy at 8 weeks’ gestation, methotrexate was discontinued due to its teratogenic potential and replaced with azathioprine (Imuran), while corticosteroid and calcium supplementation were continued.

Obstetric ultrasound at 16 weeks' gestation (Figure 1) revealed normal fetal growth and anatomy. However, a follow-up scan at 19 weeks identified a 2.8 mm membranous ventricular septal defect (VSD). The patient experienced significant emotional distress, expressing guilt over prior methotrexate exposure and concern about the potential for MS relapse if disease-modifying therapy was withheld. This decisional conflict necessitated multidisciplinary counseling involving neurology, rheumatology, and maternal-fetal medicine specialists to balance maternal disease control with fetal safety. The pregnancy resulted in preterm delivery of a neonate with VSD requiring specialized follow-up, while the mother remained clinically stable without MS relapse.

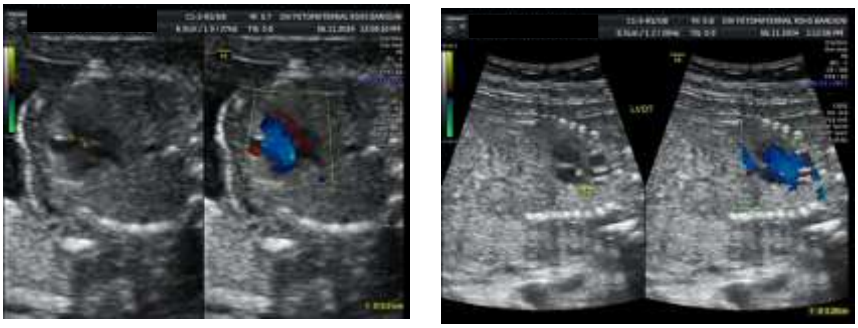

Figure 1. Fetomaternal ultrasound at 19 weeks gestation, interventricular defect of 2.8 mm in pars membranacea, VSD pars membranacea defect of 2.8 mm in LVOT cut, VSD pars membranacea defect in the fetus.

Her obstetric history was notable for adverse outcomes, including a recent premature stillbirth, two prior miscarriages, and one living child from her third pregnancy. During neurological evaluation, she reported persistent vertigo, blurred vision preceding syncope, and neuropathic pain localized to the left shoulder and extremities. Neurological examination revealed left-sided weakness, paresthesia, and suspected involvement of both peripheral and central cranial nerves. The Mini-Mental State Examination (MMSE) was within normal limits. The clinical presentation was consistent with a suspected diagnosis of relapsing-remitting multiple sclerosis (RRMS). Confirmatory testing, including MRI performed two weeks postpartum (Figure 2), revealed mild white matter changes in the bilateral juxtacortical parietal and left temporal lobes, suggestive of demyelinating disease consistent with multiple sclerosis.

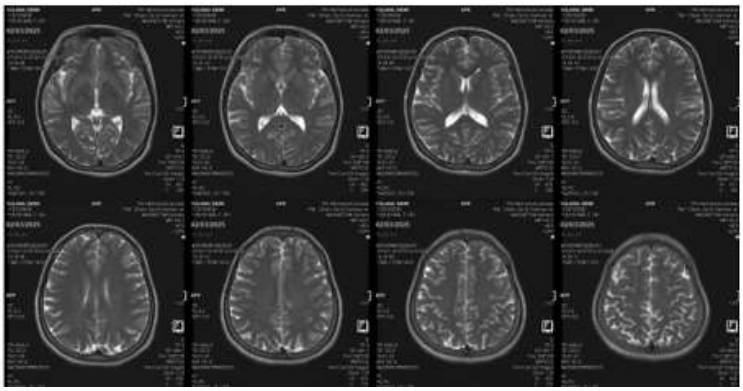

Figure 2. MRI test with contrast 2 weeks after preterm delivery

Cerebrospinal fluid (CSF) analysis result with clear, atraumatic, fast-flowing, opening pressure 180 mmH2O; Number of 3 PMN cells: MN 33.3:66.7; Protein 26; CSF: serum sugar ratio 72:123 = 58%.

DISCUSSION

Teratogenic Concerns of Methotrexate

Methotrexate (MTX), an immunomodulatory and immunosuppressive agent, has limited use in autoimmune diseases such as relapsing–remitting multiple sclerosis (RRMS) and is not considered a first-line therapy (Zanetti et al., 2022). Nonetheless, some studies have explored low-dose methotrexate as an adjuvant treatment to suppress central nervous system inflammatory activity (Verberne et al., 2019). Its mechanism of action involves inhibition of the dihydrofolate reductase enzyme, which disrupts purine synthesis and suppresses the proliferation of T and B lymphocytes implicated in demyelination. Despite these potential therapeutic effects, methotrexate poses significant safety concerns for women of reproductive age due to its well-documented teratogenicity and association with congenital malformations, particularly those affecting the cardiovascular system (Verberne et al., 2019).

Ventricular septal defect (VSD), resulting from incomplete closure of the interventricular septum, is among the congenital anomalies frequently reported following methotrexate exposure during pregnancy (Verberne et al., 2019). Case reports and small cohort studies have suggested a potential association between first-trimester methotrexate exposure and increased risk of VSD; however, the evidence remains inconclusive due to methodological limitations. In young women with relapsing-remitting multiple sclerosis (RRMS) who wish to preserve fertility, methotrexate therapy should be approached with caution and accompanied by thorough counseling on effective contraception and pregnancy planning. Current clinical guidelines recommend discontinuing methotrexate at least 3–6 months prior to conception to

reduce teratogenic risks, including VSD, thereby balancing maternal disease control with fetal safety in future pregnancies (Zanetti et al., 2022).

Implications of ventricular septal defect (VSD) were evident in this case. Prenatally detected VSDs range from small muscular defects, which often close spontaneously, to larger *perimembranous* lesions that may persist and lead to complications such as pulmonary *overcirculation*, heart failure, or pulmonary hypertension (Kopylov et al., 2022). Key predictors of adverse outcomes include defect size, anatomical location, and the presence of chromosomal or extracardiac anomalies; *perimembranous* and large VSDs, particularly those associated with genetic abnormalities, carry a poorer prognosis. Therefore, when VSD is suspected, especially following first-trimester exposure to potential teratogens, comprehensive fetal echocardiography (ideally performed between 18 and 22 weeks), a targeted anatomic survey, and consideration of genetic testing are recommended (Kopylov et al., 2022).

Concern MS-Related Pregnancy Outcome

Multiple sclerosis (MS), a chronic immune-mediated demyelinating disorder of the central nervous system, primarily affects women, with peak onset occurring during the reproductive years (Yolanda & Ritarwan, 2022). Historically, MS was considered a contraindication to pregnancy due to concerns about maternal disease progression and adverse fetal outcomes (Canibaño et al., 2020). The intersection of MS and pregnancy represents a clinically significant and ethically complex domain. This case offers a unique perspective by examining the multifaceted challenges of managing MS during pregnancy, including diagnostic uncertainty, therapeutic decision-making, ethical considerations surrounding autonomy and beneficence, and the coordination of interdisciplinary care, from the viewpoint of a young woman diagnosed with relapsing-remitting MS who experienced symptom onset early in gestation (Yamout et al., 2024).

Advancements in the understanding of MS pathophysiology, its typical progression during pregnancy, and the emergence of safer disease-modifying therapies (DMTs) have challenged earlier assumptions regarding pregnancy contraindications in MS patients (Manouchehri et al., 2022). Recent studies suggest that pregnancy, particularly during the second and third trimesters, exerts an immunomodulatory effect that significantly reduces the frequency of MS relapses (Nguyen et al., 2019). One study reported a 70% reduction in relapse rates during the third trimester compared to pre-pregnancy levels, followed by a transient increase in the postpartum period. This immune shift, attributed to a pregnancy-induced Th2 predominance, appears to suppress inflammatory relapses but introduces complexities in postpartum disease management (Varytė et al., 2020).

Early-onset multiple sclerosis (MS) presenting in the first trimester, as seen in this case, is uncommon but well documented in the literature. Several studies from high-income settings emphasize that new diagnoses or clinically isolated syndromes can occur during pregnancy, rather than being confined to the postpartum period (Hellwig et al., 2021). Cohort and case-series data indicate that while relapse frequency typically declines in the second and third trimesters, first-trimester presentations and new-onset demyelinating events are reported and warrant the same diagnostic rigor as in non-pregnant individuals (Vercellini et al., 2023). The patient's initial symptoms, bilateral lower extremity weakness, paresthesia, and optic neuritis, were concerning for a demyelinating event. Although most women experience reduced disease activity during pregnancy, symptom onset in early gestation is relatively atypical (Wang et al., 2023). Early pregnancy does not confer the same immunologic protection as later trimesters, and although rare, new MS diagnoses during pregnancy are well documented. Due to concerns about teratogenicity, gadolinium-enhanced MRI was deferred; instead, non-contrast MRI of the brain and spinal cord revealed characteristic periventricular, juxtacortical, and spinal plaques consistent with demyelinating disease (Canibaño et al., 2020). The diagnostic process is further complicated when gadolinium-based contrast agents (GBCAs) are avoided during pregnancy. Current guidelines recommend limiting GBCA use to cases where it would significantly alter clinical management, given ongoing uncertainty about fetal safety. As a result, clinicians often rely on high-resolution non-contrast MRI sequences and cerebrospinal fluid (CSF) analysis, including oligoclonal bands (OCBs), to establish dissemination in time (A & Alghamdi, 2023).

The diagnosis was established according to the 2017 revised McDonald criteria, based on the presence of oligoclonal bands in the cerebrospinal fluid (Thompson et al., 2018). This case highlights the importance of maintaining a high index of suspicion for multiple sclerosis during pregnancy and demonstrates how radiologic and laboratory evaluations can be adapted to minimize fetal risk while ensuring diagnostic accuracy. Effective MS management during pregnancy requires individualized risk stratification, taking into account disease activity, prior use of disease-modifying therapies (DMTs), maternal comorbidities, and patient preferences(Baskaran et al., 2023). Preconception counseling is strongly recommended for individuals with MS to optimize disease stability and to guide decisions regarding the continuation or discontinuation of DMTs prior to conception (Canibaño et al., 2020). Recent cohort studies and registry analyses indicate that the two first-line therapies, interferon-beta and glatiramer acetate, have favorable safety profiles during pregnancy, with no significant increase in congenital anomalies or adverse pregnancy outcomes (Canibaño et al., 2020). As

a result, many international guidelines now support the continued use of these therapies under specific conditions. In contrast, second-line agents such as cladribine, natalizumab, and fingolimod are generally discontinued before conception due to their higher teratogenic potential and immunosuppressive effects (Varytė et al., 2020).

Several disease-modifying therapies (DMTs) are contraindicated during pregnancy due to well-documented teratogenicity and adverse fetal outcomes. Fingolimod and teriflunomide, in particular, have demonstrated significant embryotoxic and teratogenic effects in preclinical studies, warranting discontinuation prior to conception; teriflunomide additionally requires accelerated elimination protocols to reduce fetal risk (Iyer & Dobson, 2022). In contrast, glatiramer acetate and interferon-β have accumulated reassuring observational safety data, supporting their continued use during pregnancy when maternal disease activity necessitates ongoing therapy (Krysko et al., 2021). This pharmacologic stratification highlights the importance of preconception counseling and coordinated multidisciplinary care involving neurology, maternal-fetal medicine, and ethics teams.

The patient independently discontinued disease-modifying therapy (DMT) upon discovering her pregnancy, a common, patient-initiated decision often driven by concerns about fetal safety (Manouchehri et al., 2022). Although this approach aligns with traditional conservative practices, recent studies suggest that abrupt cessation may increase the risk of relapse, particularly in women with high pre-pregnancy disease activity. This highlights the importance of preconception planning and shared decision-making (Canibaño et al., 2020). In this case, the patient exercised her autonomy by choosing to discontinue immunosuppressive therapy during early pregnancy, despite the potential risk of neurological deterioration. When her symptoms worsened, the clinical team convened a multidisciplinary discussion to assess the risks and benefits of initiating corticosteroid therapy (Simone et al., 2021).

High-dose intravenous methylprednisolone remains the standard treatment for acute multiple sclerosis (MS) relapses, particularly during pregnancy when maternal functional status is significantly compromised (Canibaño et al., 2020). Although corticosteroid use in the first trimester carries a minor risk of orofacial clefts and low birth weight, these risks are relatively low, and the benefits of treating severe neurological symptoms generally outweigh potential adverse effects (Canibaño et al., 2020). In this case, the patient received a three-day intravenous course of methylprednisolone during the second trimester, resulting in clinical improvement without immediate fetal complications. Serial ultrasounds and routine neurological assessments enabled close monitoring of fetal development and maternal

neurological status, underscoring the importance of coordinated, ongoing maternal-fetal medical care (Houtchens et al., 2018).

After Delivery Issues in MS

For women with multiple sclerosis (MS), long-term postpartum care planning is critical and extends beyond the immediate management of relapses (Varytė et al., 2020). The first three to six months following childbirth are associated with increased disease activity, with relapse rates often matching or exceeding pre-pregnancy levels. This resurgence is likely driven by physical stress, hormonal fluctuations, sleep deprivation, and a rapid shift back to a Th1-dominant immune profile (Varytė et al., 2020). Preventive strategies include early postpartum reinitiation of disease-modifying therapies, corticosteroid administration in the event of relapse, and, in select cases, breastfeeding as a protective adjunct.

From a systems perspective, the optimal management of pregnant women with multiple sclerosis (MS) requires interdisciplinary collaboration among neurologists, obstetricians, maternal-fetal medicine specialists, pharmacists, and ethicists. The well-being of both mother and fetus depends on coordinated scheduling, continuity of care, and the development of individualized treatment plans (Damory & Mrad, 2020). This collaborative approach enables proactive planning for delivery, postpartum relapse management, and neonatal care, while ensuring timely interventions and effective communication across specialties.

There is no evidence to suggest that the mode of delivery influences the course of multiple sclerosis or the likelihood of disease recurrence (Simone et al., 2021). Vaginal delivery is generally preferred unless obstetric indications warrant an alternative approach. Epidural analgesia is considered safe in patients with MS, and concerns about neuraxial anesthesia exacerbating neurological symptoms have been disproven. In this case, the patient experienced a favorable neonatal outcome and an uncomplicated intrapartum course, delivering spontaneously at term with epidural anesthesia.

Women with multiple sclerosis (MS) should be supported in their maternal roles, with postpartum care encompassing neurological follow-up, psychological support, and parental assistance as needed (Nguyen et al., 2019). Common postpartum conditions, such as depression and fatigue, may overlap with MS symptoms, requiring careful clinical evaluation to ensure accurate diagnosis and appropriate management (Simone et al., 2021). Reassuringly, long-term studies have shown that pregnancy does not worsen the overall progression of MS; in fact, women who have children often demonstrate comparable or even improved long-term disability outcomes compared to those who remain nulliparous (Kelly et al., 2024).

Postpartum management in women with multiple sclerosis (MS) requires a careful balance between relapse prevention and breastfeeding goals. Exclusive breastfeeding, particularly when sustained for at least two months postpartum, may reduce the risk of relapse, according to some studies (Canibaño et al., 2020). However, this protective effect may be confounded by selection bias, as women with milder disease are more likely to breastfeed. Emerging evidence indicates that several disease-modifying therapies (DMTs) exhibit minimal transfer into breast milk, with relative infant doses (RID) below 1%, resulting in negligible exposure (Manouchehri et al., 2022). For instance, peginterferon-β-1a has an estimated RID of approximately 0.0054%, while glatiramer acetate (GA) is rapidly degraded, yielding minimal oral bioavailability in infants. As a result, interferon-β and GA are considered compatible with breastfeeding and may be resumed early postpartum to mitigate relapse risk without disrupting lactation (Klehmet et al., 2023).

Additionally, emerging data on monoclonal antibodies, such as natalizumab and anti-CD20 agents including rituximab, ocrelizumab, and ofatumumab, suggest low levels of transfer into breast milk and undetectable infant serum concentrations. These findings support the possibility of continued breastfeeding when maternal disease control requires ongoing therapy, ideally with appropriate dosing adjustments and infant monitoring(Callegari et al., 2023).

Tabel 1. Comparative Safety Profiles of DMTs in Pregnancy & Lactation

DMT	Pregnancy Safety	Lactation (Relative Infant Dose)
Interferon-β (incl. peg-IFN-β-1a)	Early exposure not linked to major malformations; may cause low birth weight (interferon-β) but generally considered low-risk (Klehmet et al., 2023; Krysko et al., 2021)	Peg-IFN-β-1a maternal dose negligible transfer (Klehmet et al., 2023)
Glatiramer acetate	Safe in pregnancy (Krysko et al., 2021)	Rapidly degraded; undetectable in plasma, excretions; considered compatible with lactation
Fumarates (e.g., dimethyl fumarate)	No clear teratogenic risk early in pregnancy; caution recommended (Hellwig et al., 2021)	RID low; monitoring for infant GI symptoms advised (Hellwig et al., 2021)
Natalizumab / Anti-CD20 agents	May be continued in high-risk cases; low risk of birth defects but possible hematologic newborn effects (Krysko et al., 2021)	IgG1 agents have RID <1%, though natalizumab peaked at ~5.3%—still below 10% threshold but accumulation occurs (Callegari et al., 2023)

These findings support a personalized approach: breastfeeding can often be safely supported while maintaining maternal disease stability, provided that drug selection, timing, and infant monitoring are carefully optimized. Although the patient expressed a desire to breastfeed, her history of severe symptoms and concerns about early postpartum relapse led to counseling on the alternative option of abstaining from nursing to allow for the prompt

reinitiation of glatiramer acetate (Graham et al., 2024). This decision posed an ethical challenge, requiring a balance between the patient's autonomy and maternal identity and the principles of non-maleficence and beneficence, specifically, the prevention of harm to the mother and the protection of her future maternal capacity (Varkey, 2021).

Family planning is a vital yet frequently underemphasized aspect of comprehensive care for women with multiple sclerosis (MS). Those of reproductive age face complex decisions regarding the timing of conception, the selection or discontinuation of disease-modifying therapies (DMTs), and perinatal disease monitoring(Kelly et al., 2024). Recent guidelines underscore the importance of early preconception counseling that integrates assessments of disease stability, medication safety, and individualized reproductive goals (Damory & Mrad, 2020). This proactive approach enables clinicians to align therapeutic strategies with pregnancy planning, thereby minimizing maternal relapse risk and fetal exposure to teratogenic agents.

Between Ethical Dilemmas and Decision Making in Pregnancy with MS

From an ethical standpoint, decision-making in this context can be framed through the four-principle approach: autonomy, beneficence, non-maleficence, and justice (Varkey, 2021). Autonomy demands respect for the patient's informed choices regarding the continuation, modification, or cessation of treatment. Beneficence and non-maleficence require a careful balance between the maternal benefits of disease stability and the potential fetal risks associated with disease-modifying therapy (DMT) exposure (Alshawaf et al., 2024). Justice pertains to equitable access to specialized care, which is particularly relevant in resource-limited settings where multidisciplinary expertise may be scarce.

In high-risk pregnancies—such as those involving maternal autoimmune disease, recurrent relapses, or coexisting comorbidities—shared decision-making (SDM) provides a structured framework to reconcile patient autonomy with clinical responsibility (Lapides, 2021) . SDM promotes transparent communication, aligns medical decisions with the patient's values and reproductive goals, and helps counteract the paternalistic tendencies historically present in reproductive counseling for women with chronic illness (Alanzi et al., 2024). This approach also resonates with the broader reproductive justice framework, which affirms not only the right to have children or avoid pregnancy but also the right to parent in safe and supportive environments.

This case underscores the importance of integrating the four-principle approach into clinical reasoning. Autonomy calls for honoring the patient's reproductive choices, including the decision to pursue or continue pregnancy despite medical risks(Frith, 2025). Beneficence and non-maleficence compel clinicians to maximize benefits, such as disease stability and

optimal fetal development, while minimizing harm from both disease activity and therapeutic exposure (Varkey, 2021). Justice demands equitable access to specialist care, multidisciplinary support, and reproductive counseling, especially for patients from socioeconomically disadvantaged backgrounds.

The tension between patient autonomy and provider responsibility is particularly pronounced in pregnancies complicated by multiple sclerosis (MS) and high-risk obstetric factors. While clinicians may advise deferring conception or modifying treatment plans to mitigate risks, patients may prioritize personal, cultural, or familial considerations (Zolkefli, 2024). In such contexts, shared decision-making (SDM) serves as a critical bridge, ensuring that patients are fully informed of the risks, benefits, and available alternatives, while allowing clinicians to offer guidance rooted in current evidence (Graham et al., 2024). Reproductive justice further expands this framework, affirming that women with chronic illness are entitled to the same rights to informed choice, bodily autonomy, and access to safe reproductive healthcare as any other population.

Ethical considerations surrounding multiple sclerosis (MS) and pregnancy extend beyond medication management and breastfeeding practices. They encompass long-term planning, disability rights, and reproductive autonomy (Zolkefli, 2024). Concerns about parental capability or the potential for disease transmission may subject some patients to social or familial pressure to avoid conception (Yamout et al., 2024). Although MS is not directly inherited, the lifetime risk of developing the condition in offspring of an affected parent is estimated at 2–5% (Patsopoulos, 2018). Healthcare providers must avoid ableist assumptions about parenting with disabilities and instead support informed, non-coercive reproductive decision-making.

This case highlights the importance of ethical awareness in honoring patient autonomy through clear, evidence-based guidance. Despite receiving conflicting recommendations, the patient voiced concerns about the teratogenic risks of medication, which influenced her initial decisions (Simone et al., 2021). While her autonomy was respected, the clinical team addressed misconceptions and provided updated, accurate information. In complex scenarios where no singular “correct” answer exists and personal values significantly shape treatment choices, the shared decision-making (SDM) process becomes essential (Camilleri, 2024). Tools such as visual risk communication aids, structured decision-making instruments, and ongoing counseling sessions can improve patient understanding and help reduce decisional conflict (Damory & Mrad, 2020).

CONCLUSIONS

This case underscores the complex clinical and ethical challenges involved in managing relapsing-remitting multiple sclerosis (RRMS) during pregnancy, particularly in the context of early gestational onset, coexisting autoimmune conditions, and a history of adverse obstetric outcomes. While pregnancy may offer temporary immunomodulatory benefits, the atypical early symptom presentation in this patient necessitated prompt diagnostic evaluation and individualized care planning. Achieving a balance between maternal disease control and fetal safety required multidisciplinary coordination, ethical sensitivity, and shared decision-making tailored to the patient's values and clinical needs.

A central ethical dilemma in this case involved reconciling the patient's autonomy, reflected in her decision to discontinue disease-modifying therapy (DMT) early in pregnancy, with the clinical team's obligations of beneficence and non-maleficence, given the risks of maternal relapse and potential fetal drug exposure. This tension highlights the importance of shared decision-making (SDM) frameworks that respect patient values while ensuring informed consent grounded in the most current safety data. Justice considerations were equally critical, as access to advanced diagnostics, multidisciplinary expertise, and safe DMTs remains limited in many low- and middle-income countries (LMICs), further emphasizing the need for individualized, context-sensitive care planning.

From a systems-level perspective, preconception counseling is essential for women with multiple sclerosis (MS) to optimize disease-modifying therapy (DMT) selection, plan the timing of pregnancy, and minimize fetal risk. In cases of first-trimester teratogen exposure, fetal echocardiography between 18 and 22 weeks gestation should be integrated into routine antenatal care. Postpartum planning must include relapse prevention strategies, breastfeeding counseling, and timely reinitiation of safe DMTs. The establishment of national and international pregnancy registries, along with collaboration with surveillance networks such as EUROCAT, can strengthen teratogen monitoring and inform future clinical guidelines. Sustained follow-up beyond delivery is crucial to track maternal disease progression and assess the child's developmental outcomes. The uniqueness of this case stems from the convergence of early-onset relapsing-remitting multiple sclerosis (RRMS) during pregnancy, coexisting autoimmune disease, and the ethical complexities encountered in a resource-limited setting. These factors highlight its global relevance: expanding access to multidisciplinary care, evidence-based reproductive counseling, and registry-driven surveillance is essential to improving maternal and fetal outcomes in similar contexts worldwide. Continued follow-up

beyond delivery remains crucial for monitoring both the maternal disease trajectory and the child's developmental progress.

SUGGESTION

Women with multiple sclerosis (MS) who are planning to conceive should receive comprehensive preconception counseling aimed at stabilizing disease activity, optimizing the timing of conception, and evaluating the risks and benefits of disease-modifying therapies (DMTs). Interdisciplinary care—integrating neurology, maternal-fetal medicine, and ethics consultation—is essential to ensure holistic and patient-centered management.

To support informed decision-making, clinicians should employ visual risk communication tools and structured decision aids that clarify treatment options and address misconceptions. Postpartum care should include individualized relapse prevention strategies, early reinitiation of safe DMTs, mental health support, and tailored breastfeeding guidance.

In cases of first-trimester teratogen exposure, fetal echocardiography between 18 and 22 weeks gestation should be incorporated into antenatal care to facilitate early detection of anomalies. Long-term follow-up is critical to monitor both maternal disease progression and the child's developmental outcomes. Participation in national and international pregnancy registries, such as EUROCAT, should be encouraged to enhance surveillance of teratogenic effects in autoimmune pregnancies and inform future clinical guidelines.

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