

Disease Course of Axial Spondyloarthritis in Pregnancy

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Abstract

Objective: Limited information exists regarding the impact of axial spondyloarthritis (axSpA) on pregnancy compared to other chronic inflammatory disorders. Axial spondyloarthritis's unique anatomical and inflammatory impact on pregnancy presents challenges. This study aims to assess axSpA's progression during pregnancy.

Methods: A retrospective observational study at a private rheumatology clinic assessed axSpA's progression during pregnancy in 80 women previously diagnosed with the condition.

Results: Onset of axSpA occurred at an average age of 23.2 years. Symptoms worsened in 29 (36.25%) patients during pregnancy, while 51 (63.7%) experienced improvement or remission. Twelve (15%) women faced conception difficulties, with a delay of over a year. Cesarean sections were performed in 42 (62.6%) cases, while 25 (37.3%) had full-term vaginal deliveries.

Conclusion: During pregnancy, there is a noticeable tendency for alterations in disease activity and symptoms experienced. This study highlights the need for better understanding and awareness of axSpA's impact on pregnancy outcomes

Keywords: Axial spondyloarthritis, pregnancy, pregnancy outcome, symptoms

Introduction

Pregnancies with rheumatic diseases are considered high-risk owing to the potential risks of maternal and neonatal complications, disease flares and drug teratogenicity.¹ The influence of pregnancy on rheumatic disease ranges from spontaneous resolution to symptom aggravation.

Many women with axSpA share common concerns about the risk of disease flare during pregnancy, yet this issue has remained inconclusive.

Since axSpA develops in early adulthood, the disease has a peak incidence in the childbearing years.² Many women become pregnant during the course of the disease. In addition, axSpA can have a direct impact on pregnancy and its outcome due to the involvement of pelvic joints – sacroiliac and pubic symphysis.

An observational retrospective study was conducted to investigate the relationship between axSpA and pregnancy outcomes.

Material and Methods

This observational descriptive study was conducted to assess the disease course of axSpA in pregnant females visiting a private rheumatology clinic between 2014 and 2022. The study received approval from the Institutional Ethics Committee of Deemed University Bharati Vidyapeeth Medical College, Pune. (Date: January 04, 2022; Approval No.: BVDUMC/IEC/59) All participants were adults (age >18) who met the Assessment of Spondyloarthritis International Society classification criteria for axSpA. An informed consent form was obtained from all the participants prior to their involvement in the study. The accompanying conditions, symptom aggravation, mode of delivery, other pregnancy outcomes, and drug utilization patterns were examined. Females diagnosed with axSpA after pregnancy were excluded. Retrospective data were obtained from patient records using HealthLink EMR software, and patients were also interviewed using a self-administered questionnaire, validated for internal consistency using the Cronbach alpha score.

Results

The study included 80 patients, with an average age of 32.7 (+/-6.85) years. The mean axSpA symptoms onset age was 23.2 (+/-4.1) years, and the average age at the time of pregnancy was 27.3 years. Mean C-Reactive Protein (CRP) and Erythrocyte Sedimentation Rate (ESR) levels were 11.2 (0-10) and 26.15 (0-20) respectively at the time of this study. Symptoms predominantly affected the back, hips, and pelvis.

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During pregnancy, 29 patients (36.25%) experienced symptom exacerbation, mainly during the seventh and eighth months, often in the form of acute and relapsing flare-ups. Symptoms of worsening included increased morning stiffness in 53 (66.25%), increased hip and back pain 44 (55%), and nocturnal pain in 28 (35%). However, 51 women (63.75%) reported symptom improvement or remission throughout their pregnancies. Prior to pregnancy, extra-spinal manifestations were observed in a significant percentage of patients—peripheral arthritis 18 (22.5%), uveitis 13 (16.2%), inflammatory bowel disease 5 (6.25%), psoriasis 2 (2.5%), and enthesitis 3 (3.75%). However, none of these patients experienced exacerbation of extra-spinal symptoms during the pregnancy.

Out of 80 patients, 41 women reported being anxious about their pregnancy outcome. Difficulty in conceiving was experienced by 12 (15%) women, and they reported a delay of more than 1 year in conceiving.

Mode of delivery was recorded for 67 pregnancies, of which cesarean section (CS) was performed in 42 (62.6%) patients and 25 (37.3%) resulted in full-term vaginal delivery of a healthy child. The indication for CS was noted as preeclampsia in 5 patients and older maternal age in 3 patients. The indication for CS was not recorded in the remaining patients' records available with them.

Preeclampsia 6 (7.5%), miscarriages 8 (10%), and congenital abnormalities 5 (6.2%) were noted. Congenital abnormalities were detected during pregnancy monitoring in 5 women, all of whom underwent abortion. Among 67 live births, the proportion of male fetuses 36 (53.7%) was higher as compared to female 31 (46.26%). The mean birth weight was 2.46 kgs.

Main Points

- Most women with axSpA experience improvement or remission of symptoms during pregnancy, although over one-third develop disease flares, particularly in late gestation.
- Postpartum disease exacerbation is common, occurring in more than half of patients, emphasizing the need for close follow-up after delivery.
- Pregnancy outcomes are largely reassuring, but higher rates of anxiety, delayed conception, and cesarean delivery are observed in women with axSpA.

A postpartum exacerbation of axSpA symptoms was experienced by 38 (56.7%) patients, most of which occurred 1 week after delivery. Out of these 38, 15 patients had also reported the aggravation of axSpA symptoms during pregnancy. A disease flare was reported by 25 patients 3-6 months after delivery.

Discussion

There is a marked tendency for alteration in symptoms of disease activity experienced during pregnancy. In this study, the patients who experienced remission noticed a greater relief of symptoms during their pregnancy compared to when they were not pregnant. Although the mechanisms underlying the improvement or remission of axSpA symptoms during pregnancy are not yet fully understood, it is postulated due to the immunomodulatory effects of pregnancy hormones and increased levels of anti-inflammatory cytokines.³

Exacerbation of symptoms noted in patients is often in the form of acute flare, including marked aggravation of morning stiffness and back pain at rest, which further seems to be aggravated towards later months of gestation. The timing of symptom exacerbation may suggest hormonal and mechanical factors playing a role in disease activity during later stages of pregnancy.⁴ These findings were largely in accordance with 2 studies that described pregnancy-associated changes in disease activity.⁵ The findings of postpartum disease exacerbation in 38 patients, with most flares occurring 1 week after delivery, highlight the importance of postpartum monitoring, particularly in women with a history of disease activity during pregnancy. The reasons for postpartum flares in axSpA are not well understood, but it may be due to the increased physical stress associated with parturition and care for a newborn baby, as previously suggested by Hart.⁶ In this study, nearly 40% patients who had postpartum flares also experienced aggravation of axSpA symptoms during pregnancy.

In addition to disease activity, this study also examined pregnancy outcomes in women with axSpA. Although most women had uneventful pregnancies and full-term, healthy deliveries, the proportion of women reporting anxiety about their pregnancy (51.2%) and difficulty in conceiving (15%) highlights the challenges that women with axSpA may face during pregnancy. The rates of preeclampsia (7.5%), miscarriages (10%), and congenital abnormalities (6.2%) reported in this study are comparable to rates reported in the general population.⁷

The mode of delivery is an important consideration in pregnant women with axSpA, as the involvement of pelvic joints, such as the sacroiliac and pubic symphysis, can potentially affect the mode of delivery. The higher rate of CS (62.6%) compared to vaginal delivery (37.3%) in this study may suggest that women with axSpA may have increased risks of complications during labor and delivery, possibly due to the impact of axSpA on the musculoskeletal system, including the pelvis and spine. This is consistent with previous studies that have reported an increased risk of CS in pregnant women with axSpA.⁸

The association of active axSpA disease with higher CS deliveries has also been reported.⁹ In this study, 16 (38%) patients who underwent CS had reported aggravation of axSpA symptoms during pregnancy (Table 1). Preterm birth and preeclampsia have been associated with the higher number of CS deliveries in axSpA patients.¹⁰ Other possible causes of CS reported are general comorbidities, malposition of the fetal head during labor or severe pain due to sacroiliitis or hip arthritis.¹¹

Another interesting finding of this study is the absence of extra-articular manifestations during pregnancy or the postpartum period. This contrasts with some other rheumatic diseases, such as systemic lupus erythematosus, where pregnancy can be associated with an increased risk of disease flares and extra-articular manifestations.^{12,13}

Additionally, this study observed that most women refrained from taking any medication, even when they felt the need for it, out of concern for potential harm to the foetus.

It is acknowledged that there are various limitations to this study. It has a small sample size, a lack of control group, and retrospective study design limited to a specific time interval. The data collected for this study was self-reported through a questionnaire, and self-reported variation in disease activity was relied on during pregnancy. Also, the focus was mainly on identifying the connection between patient-reported axSpA symptoms and pregnancy. However, these symptoms may have multifactorial origins during pregnancy. A study suggested that back pain during pregnancy is due to biomechanical factors associated with the gravid uterus.¹⁴ However, women with axSpA may be able to distinguish between pain related to pregnancy and that related to axSpA due to the location, character, and timing of the discomfort.

Table 1. Maternal Demographics, Pregnancy and Postpartum Outcomes in Women with Axial Spondyloarthritis (n = 80)

Parameter	Value / n (%)
Demographics	
Mean age (years)	32.7 ± 6.85
Mean age at symptom onset (years)	23.2 ± 4.1
Mean age at pregnancy (years)	27.3
Symptoms during pregnancy	
Symptom exacerbation	29 (36.25)
Symptom improvement/remission	51 (63.75)
Month of peak exacerbation	7th-8th months
Increased morning stiffness	53 (66.25)
Increased hip/back pain	44 (55)
Nocturnal pain	28 (35)
Pregnancy outcomes	
Anxiety regarding pregnancy outcome	41 (51.25)
Difficulty conceiving (>1 year)	12 (15)
Cesarean section (CS)	42 (62.6) [†]
Vaginal delivery	25 (37.3) [†]
Preeclampsia	6 (7.5)
Miscarriages	8 (10)
Congenital abnormalities	5 (6.2) – identified during monitoring; all underwent abortion
Postpartum exacerbation	
Postpartum symptom exacerbation	38 (56.7) [‡]
Exacerbation within 1 week of delivery	Majority within 1 week [‡]
Flare at 3-6 months postpartum	25 (37.3) [‡]

Percentages for delivery mode are calculated using the number of deliveries with a recorded mode (n = 67). Postpartum outcomes are calculated using the postpartum cohort with known follow-up data (n = 67). All other percentages use the total study cohort (n = 80) as the denominator unless stated otherwise. Congenital abnormalities were detected during pregnancy monitoring in 5 patients, all of whom underwent abortion.

[†] Delivery mode % use n = 67 with known mode.

[‡] Postpartum outcomes use postpartum cohort n = 67.

Overall, this study underscores the need for increased awareness and understanding of this unique clinical scenario. These results revealed that axSpA has a significant impact on pregnancy outcomes, with a large number of patients reporting remission. Back pain and stiffness were the most common symptoms during pregnancy, and postpartum flares of axSpA were reported by more than half of the women. However, none of the patients had extra-articular manifestations during pregnancy or the postpartum period. Drug utilization during pregnancy was low, with most women avoiding medication due to fear of harm to the foetus.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Deemed University Bharati Vidyapeeth Medical College (Date: January 04, 2022; Approval No.: BVDUMC/IEC/59).

Informed Consent: Verbal and Written informed consent was obtained from the patients/patient who agreed to take part in the study.

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References

- Davutoğlu EA, Ozel A, Yılmaz N, Madazli R. Pregnancy outcome in 162 women with rheumatic diseases: experience of a university hospital in Turkey. *Arch Gynecol Obstet.* 2017;296(6):1079-1084. [\[CrossRef\]](#)
- Maguire S, Wilson F, Gallagher P, Mohamed MMS, Maher S, O'Shea F. What to expect when women with axial spondyloarthritis are expecting: prevalence of complications of pregnancies in women with axial spondyloarthritis. *Semin Arthritis Rheum.* 2022;54:151993. [\[CrossRef\]](#)
- Chimenti MS, Alten R, D'Agostino MA, et al. Sex-associated and gender-associated differences in the diagnosis and management of axial spondyloarthritis: addressing the unmet needs of female patients. *RMD Open.* 2021;7(3):e001681. [\[CrossRef\]](#)
- Ostensen M, Romberg O, Husby G. Ankylosing spondylitis and motherhood. *Arthritis Rheum.* 1982;25(2):140-143. [\[CrossRef\]](#)
- Mokbel A, Lawson DO, Farrokhyar F. Pregnancy outcomes in women with ankylosing spondylitis: a scoping literature and methodological review. *Clin Rheumatol.* 2021;40(9):3465-3480. [\[CrossRef\]](#)
- Rusman T, van Vollenhoven RF, van der Horst-Bruinsma IE. Gender differences in axial spondyloarthritis: women are not so lucky. *Curr Rheumatol Rep.* 2018;20(6):35. [\[CrossRef\]](#)
- Lui NL, Haroon N, Carty A, et al. Effect of pregnancy on ankylosing spondylitis: a case-control study. *J Rheumatol.* 2011;38(11):2442-2444. [\[CrossRef\]](#)
- Lee JS, Oh JS, Kim Y-J, et al. Why the caesarean section rate is high in women with ankylosing spondylitis. *The Journal of Rheumatology Oct 2019, jrheum* [\[CrossRef\]](#) /jrheum.190754
- Götestam Skorpen C, Lydersen S, Salvesen KÅ, Koksvis HSS, Jakobsen B, Wallenius M. Caesarean section in women with axial spondyloarthritis and psoriatic arthritis: a population-based study. *RMD Open.* 2023;9(1):e002760. [\[CrossRef\]](#)
- Singh N, Pradeep Y, Jauhari S. Indications and determinants of cesarean section: a cross-sectional study. *Int J Appl Basic Med Res.* 2020;10(4):280-285. [\[CrossRef\]](#)
- Mørk S, Voss A, Möller S, Bliddal M. Spondyloarthritis and outcomes in pregnancy and labor: a nationwide register-based cohort study. *Arthritis Care Res (Hoboken).* 2021;73(2):282-288. [\[CrossRef\]](#)
- Knight CL, Nelson-Piercy C. Management of systemic lupus erythematosus during pregnancy: challenges and solutions. *Open Access Rheumatol.* 2017;9:37-53. [\[CrossRef\]](#)
- Georgiou PE, Politi EN, Katsimbri P, Sakka V, Drosos AA. Outcome of lupus pregnancy: a controlled study. *Rheumatology (Oxford).* 2000;39(9):1014-1019. [\[CrossRef\]](#)
- Katonis P, Kampourglou A, Aggelopoulos A, et al. Pregnancy-related low back pain. *Hippokratia.* 2011;15(3):205-210.