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An obstetrical and gynecological insight to measure gender specific issues in scoliosis - A step towards empowering women's inclusive health

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BACKGROUND

- Scoliosis has systemic implications beyond musculoskeletal changes
- Its potential impact on hormonal, menstrual, reproductive, and obstetrical health in females remains underexplored

- **OBJECTIVE:** The objective of this study is thereby to evaluate and compare the menstrual, reproductive, and obstetrical health of females with different subtypes of scoliosis and to identify associated gynaecological abnormalities

METHODS

- The study was conducted at a tertiary care centre between January 2021 and November 2022
- 292 scoliosis patients, 50 controls were recruited
- Clinical evaluation, questionnaires, ultrasound was done
- Statistical tests like Fisher’s exact, Bartlett’s test were used

PROFORMA

PATIENT DETAILS:

Name Age:

UHID No:

Phone No:

Age at menarche:

Diagnosis:

CLINICAL:

Gynecological

Menstrual H/o:

Duration of most recent cycle

Regular / irregular

Scanty / average /heavy (no. of pads per day)

Duration of flow

Intermenstrual bleeding

Infertility: Primary/ Secondary

Physical complaints: Abdominal pain/Headache

Psychological complaints: instable mood/irritability/crying/loneliness

H/o Smoking/Drinking: yes/no and frequency

Obstetric History

Gravida

Para

Details about last pregnancy:

i) Vaginal/caesarean delivery

ii) Need for induction

iii) Spontaneous abortion

iv) Still birth

v) Duration of pregnancy

USG Pelvis findings:

Uterus: Size

ET

Ovary: Right- Size

Left- Size

Any adnexal mass:

Fluid in Pelvis/Abdomen:

RESULTS

Parameter	Idiopathic	Congenital	Syndromic	Control
Age at Menarche (yrs)	11.56 ± 0.77 (p= 0.001)	12.5 ± 0.77 (p= 0.006)	12.25 ± 0.86 (p= 1)	12.04 ± 0.75
Duration of Flow (days)	2.56 ± 0.80 (p= 0.23)	3.02 ± 0.66 (p= 0.004)	2.58 ± 0.66 (p= 0.45)	2.69 ± 0.89
Amount of Flow (pads)	2.42 ± 0.71 (p= 1)	3.13 ± 0.63 (p= 0.002)	3.25 ± 0.75 (p= 0.001)	2.45 ± 0.60

Cycle Type	Idiopathic (AIS)	Congenital	Syndromic	Control
Regular (n/%)	117 (73.58%)	53 (60.23%)	7 (58.33%)	39 (81.25%)
Irregular (n/%)	42 (26.42%)	35 (39.77%)	5 (41.67%)	9 (18.75%)
P-value				0.031

Complaint	Idiopathic (AIS)	Congenital	Syndromic	Control
None	109 (68.55%)	47 (53.41%)	6 (50.00%)	41 (85.42%)
Abdominal Pain	46 (28.93%)	40 (45.45%)	6 (50.00%)	7 (14.58%)
Headache	4 (2.52%)	1 (1.14%)	0	0
P-value				0.003

Complaint	Idiopathic (AIS)	Congenital	Syndromic	Control
None	114 (71.70%)	60 (68.18%)	9 (75%)	37 (77.08%)
Irritable	14 (8.21%)	6 (6.82%)	0	1 (2.08%)
Crying	29 (18.84%)	22 (25%)	3 (25%)	10 (20.83%)
Loneliness	2 (1.26%)	0	0	0
P-value				0.782

RESULTS

Finding	Idiopathic	Congenital	Syndromic	Control
Endometrial Thickness(mm)	6.01 ± 0.96	7.64 ± 1.25	7.15 ± 1.50	5.25 ± 0.84
NAD	85	43	6	42
Follicular Cyst	27 (p=0.5228)	16 (p=0.0039)	4 (p=0.0021)	5
Bulky Ovary	7 (p=0.2546)	6 (p=0.0027)	1 (p=0.0021)	2
Endometriosis	0	1	0	0
Ascitis	1	1	1	1
PCOD	4	0	0	0
Fibroid	1	0	0	0

DISCUSSION

- We have tried to find and compare the prevalence of menstrual disorders in various subgroups of scoliosis
- To ascertain whether there is a difference between them that can be attributed to the pathophysiology of that subgroup of scoliosis
- Delayed onset of menarche occurred more frequently in scoliosis girls
- Oestrogen, melatonin and leptin were potentially responsible for the predisposition to late menarche in AIS

DISCUSSION

- Detection of menstrual abnormalities and endometrial and ovarian pathology in those patients will lead to timely referral and intervention by gynaecologist
- The psychological complaints were not significantly more than that of control group as contrary to the hypothesis
- Ovarian and endometrial pathologies were also found to be more in congenital group
- This could be due to a common embryological origin of the vertebral column and urogenital system as explained earlier

CONCLUSION

- Scoliosis, particularly of congenital and syndromic origin, is associated with delayed menarche, menstrual irregularities, and gynecological abnormalities
- Although obstetrical data were limited, trends suggest potential complications that merit further investigation
- Larger, long-term prospective studies are needed to clarify these associations and improve multidisciplinary care for female scoliosis patients

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