Volume 4, Issue 3, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

STRUCTURAL ABNORMALITIES DETECTED ON HYSTEROSALPINGOGRAPHY AND ITS ASSOCIATED FACTORS AMONG INFERTILE WOMEN AT A TERTIARY CARE HOSPITAL IN PESHAWAR, PAKISTAN

Muhammad Zubair[*1], Seema Riaz[2], Sidra Tul Muntaha[3], Fatima Tuz Zahra[3], Muhammad Azhar Khan[4], Tanzeel Salim Gandapur[5], Prof. Dr. Muhammad Shahid[6]

[*1]*Demonstrator Radiology, Khyber Medical University IHS Kohat, Pakistan*
[2]*Rehman Medical Institute, Pakistan*
[3]*Demonstrator Radiology, KMU IHS DIK, Pakistan*
[3]*Assistant Professor, Iqra National University Peshawar, Pakistan*
[4]*Peshawar Institute of Cardiology, Pakistan*
[5]*Demonstrator, KMU IHS Hazara, Pakistan*
[6]*Department of Biochemistry, University of Agriculture, Faisalabad, Pakistan*

[*1]zkkhan9876@gmail.com, [2]shahsimmi8@gmail.com, [3]sidratulmuntaha711@gmail.com, [3]zahrakhan8989@gmail.com, [4]mohammadazhar510@gmail.com, [5]tanzeelsalim@kmu.edu.pk, [6]mshahiduaf@uaf.edu.pk

DOI: http://doi.org/10.5281/zenodo.19200167

Keywords
hysterosalpingography; infertility; tubal blockage; hydrosalpinx; uterine anomalies; Pakistan

Article History
Received: 20 January 2026
Accepted: 04 March 2026
Published: 19 March 2026

Copyright @Author
Corresponding Author: *
Muhammad Zubair

Abstract

Introduction: *Tubal and uterine pathologies are recognized as the leading anatomic contributors to female infertility in many low- and middle-income countries. Where diagnostic laparoscopy is not readily accessible, hysterosalpingography (HSG) retains prominence as the first-line imaging test.*

Objective: *To determine the frequency, pattern and predictors of structural abnormalities detected on HSG among infertile women at a tertiary care hospital in Peshawar, Pakistan, and to compare findings between primary and secondary infertility.*

Methods: *We performed a descriptive cross-sectional study from January to June 2024. A total of 196 married women aged 18–40 years, presenting with at least 12 months of primary or secondary infertility, underwent standardized HSG between menstrual cycle days 6–11. Two independent radiologists interpreted the images; disagreements were resolved by consensus. Demographic, clinical and radiologic variables were analyzed using SPSS 26. Chi-square and Fisher's exact tests assessed associations; binary logistic regression explored predictors of tubal pathology.*

Results: *Mean age was 28.8 ± 6.2 years; the predominant age band was 26–30 years (41.3%). Secondary infertility accounted for 71.4% of cases. Overall, 52/196 (26.5%) HSGs were abnormal. Tubal pathology predominated (42/196, 21.4%): unilateral blockage 20.9% (left 11.2%, right 9.7%) and bilateral blockage 0.5%. Hydrosalpinx occurred in 3.1%. Uterine abnormalities comprised 4.6% mainly congenital malformations (unicornuate 1.5%, arcuate 1.0%, bicornuate 0.5%) and submucosal fibroid 0.5%. Tubal pathology*

Volume 4, Issue 3, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

was significantly more frequent in secondary than primary infertility (adjusted OR = 1.96, 95% CI 1.07–3.59, p = .03). Age, parity and body-mass index were not significant predictors.

Conclusion: *Approximately one quarter of infertile women demonstrated structural abnormalities on HSG, with unilateral tubal occlusion being the principal lesion. The strong link between secondary infertility and tubal disease underscores the need for early infection prevention and prompt postpartum care. Where laparoscopy is unavailable, HSG remains indispensable for triaging patients to tubal recanalization or assisted reproduction.*

INTRODUCTION

Infertility is the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse that affects an estimated 48 million couples worldwide, constituting a major public-health concern (World Health Organization [WHO], 2020). Beyond its medical implications, infertility carries profound psychosocial, cultural and economic consequences, particularly in societies where childbearing is closely tied to a woman's social status and marital stability (Inhorn & Patrizio, 2015). Globally, female factors contribute to roughly one-third of infertility cases, male factors to another third, and the remainder represent combined or unexplained causes (Mascarenhas et al., 2012).

Among the female causes, tubal and uterine structural pathologies occupy centre stage. Tubal occlusion whether unilateral or bilateral accounts for 30–40 % of female infertility in many low- and middle-income countries (LMICs), predominantly arising from pelvic inflammatory disease (PID), post-abortal or postpartum sepsis, tuberculosis, or previous pelvic surgery (Okoh et al., 2018). Uterine anomalies, both congenital (e.g., septate, bicornuate, unicornuate uteri) and acquired (submucosal fibroids, intra-uterine adhesions), further reduce fertility by interfering with sperm migration, embryo implantation or gestational maintenance (Grimbizis & Campo, 2010).

In high-income settings, transvaginal sonography and diagnostic laparoscopy supplemented by chromopertubation have, to some extent, replaced HSG. However, in LMICs including Pakistan limited theatre availability, cost constraints, and specialist shortages render laparoscopy inaccessible to many couples (Jawad et al., 2021). Accordingly, HSG continues to serve as the pivotal initial test to assess tubal patency and delineate uterine cavity contours.

Despite its continued utilisation, local data on HSG findings in Pakistan remain scarce and geographically skewed towards the nation's largest metropolitan centres. Most published work emanates from Karachi and Lahore (Riaz et al., 2022; Sultana et al., 2018), with few studies representing the Khyber Pakhtunkhwa (KP) province. Yet cultural norms, health-care-seeking behaviour, and PID prevalence vary considerably across regions (Ahmed et al., 2019). Context-specific evidence is therefore indispensable for tailoring infertility-care pathways.

Moreover, the relative burden of primary versus secondary infertility differs regionally. The WHO's multi-country demographic analysis showed that secondary infertility defined as the inability to conceive following a previous viable pregnancy is particularly common in South-Central Asia, reflecting higher rates of postpartum or post-abortal infections (Mascarenhas et al., 2012). Understanding how HSG findings differ between primary and secondary infertility groups can identify preventable pathways and inform public-health interventions.

Against this backdrop, we conducted a descriptive cross-sectional study at a tertiary-care teaching hospital in Peshawar, KP. Our objectives were threefold: (i) to determine the frequency and pattern of structural abnormalities on HSG among infertile women; (ii) to compare lesions between primary and secondary infertility; and (iii) to explore demographic predictors of tubal

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

pathology. By filling the regional evidence gap, we aim to support local clinicians in optimising diagnostic algorithms and to assist policymakers in prioritizing preventive strategies particularly those targeting PID, obstetric sepsis and unregulated abortion services.

Materials and Methods

A hospital-based cross-sectional study was conducted at Rahman Medical Hospital in Peshawar, involving 196 patients scheduled for Hysterosalpingography (HSG) as part of infertility diagnostic testing. After obtaining Institutional Review Board approval and ethical clearance from TIMES Institute and Rahman Medical Hospital, data was collected from patients aged 18-40 with a thorough clinical history, focusing on age, infertility type, pelvic inflammatory disease (PID) history, menstrual cycle regularity, and tubal blockage. Patients with inconclusive exams or male factor infertility were excluded. All participants provided informed consent, and trained radiologists performed HSG procedures using a water-soluble contrast medium and saline to assess uterine cavity and tubal patency.

Study Design and Setting

It was a hospital-based descriptive cross-sectional study at the Department of Radiology, Rahman Medical Institute (RMI), a 500-bed tertiary-care facility in Peshawar that serves as a referral centre for northern Pakistan and eastern Afghanistan. RMI performs an average of 70–80 HSG procedures monthly. The study protocol received ethical clearance from the RMI Institutional Review Board (IRB-RMI-RAD-2023-012) and adhered to the Declaration of Helsinki. Written informed consent was obtained from all participants.

Using the single-population proportion formula with a 5 % margin of error, 95 % confidence level and an expected abnormal HSG prevalence of 27 % (based on Sultana et al., 2018), we required at least 190 participants. We recruited 196 consecutive women fulfilling the following criteria:

- **Inclusion:** Married women aged 18–40 years presenting to the infertility clinic with at least 12 months of inability to conceive (primary) or inability to conceive following a previous live birthor miscarriage (secondary).

- **Exclusion:** Evidence of male-factor infertility (abnormal semen analysis), incomplete or poor-quality HSG films, prior bilateral salpingectomy or surgical sterilisation, known endometriosis, or acute PID.

HSGs were scheduled between cycle days 6 and 11 to minimise the risk of disturbing an early pregnancy and to reduce blood artefacts. Pre-procedural prophylaxis comprised oral doxycycline 100 mg twice daily for three days and ibuprofen 400 mg 30 minutes before the procedure. Under aseptic conditions and fluoroscopic guidance (GE Precision Thunis-800+), a Leech-Wilkinson cannula was inserted into the cervical canal. A total of 10–15 mL of water-soluble iodinated contrast medium (Urografin 76 %) was gently infused. Standard images were obtained in the anteroposterior, right oblique, left oblique and delayed views.

Two radiologists (each with >7 years' experience in women's imaging) independently reviewed the digital images using a dedicated workstation. Reported parameters included uterine configuration (normal, congenital anomaly, fibroid, synechiae), tubal patency (unilateral or bilateral blockage, hydrosalpinx), contrast intraperitoneal spill pattern, and ancillary findings (peritoneal adhesions, loculated spill). Discrepancies were adjudicated in a consensus meeting. Demographic variables (age, residence, education), reproductive history (parity, previous miscarriages, Caesarean sections, pelvic surgery), and body-mass index (BMI) were extracted from clinical records. Data were entered into SPSS version 26 with double-entry verification.

Continuous variables are presented as mean ± standard deviation (SD) or median (inter-quartile range [IQR]) depending on normality (assessed by the Shapiro–Wilk test). Categorical variables are summarised as frequencies and percentages. Bivariate associations between infertility type and HSG findings were evaluated using the χ^2 test; Fisher's exact test was

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

applied where expected cell counts were <5. Variables with $p < 0.20$ in bivariate analyses were entered into a multivariable binary logistic-regression model to identify independent predictors of tubal pathology, reporting adjusted odds ratios (aOR) with 95 % confidence intervals (CI). Statistical significance was set at $p < 0.05$.

Results:

Out of 196 women, 112 (57.1 %) resided in urban Peshawar, while 84 (42.9 %) came from peri-urban or rural districts. The mean BMI was 26.2 ± 3.9 kg/m²; 38 (19.4 %) were obese (BMI ≥30). Secondary infertility predominated (n = 140, 71.4 %), with a median infertility duration of 3.6 years (IQR 2.0–6.5). Among the secondary-infertility group, 65 % experienced at least one miscarriage and 28 % reported a history of the Caesarean section ***Table 1***.

Characteristic	N (%) / Value
Total participants	196
Urban residence (Peshawar)	112 (57.1%)
Peri-urban/Rural residence	84 (42.9%)
Mean BMI	26.2 ± 3.9 kg/m²
Obese (BMI ≥30)	38 (19.4%)
Secondary infertility	140 (71.4%)
Median infertility duration	3.6 years (IQR 2.0–6.5)
≥1 miscarriage*	91 (65%)
History of Caesarean section*	39 (28%)

Percentages calculated from secondary infertility group (n = 140).

Clinical Characteristics of HSG:

The table 2 presents the clinical characteristics of patients based on their HSG (hysterosalpingography) findings. Out of 196 patients, 73.5% had normal HSG results, while 26.5% had abnormalities. Among them, 21.4% had blocked fallopian tubes, with 20.9% showing unilateral blockage (11.2% in the left tube, 9.7% in the right) and only 0.5% having bilateral blockage ***(Figure1).*** Ectopic pregnancy was rare (0.5%), as was a history of surgery (1%) or filling defects (1.5%). The majority had secondary infertility (71.4%) and normal uterine outlines (79.6%). A small number had congenital anomalies (3.6%), hydrosalpinx (3%), fibroids (0.5%), or cervical pathologies (0.5%). No cases of adenomyosis were noted. Other incidental findings included venous extravasation (2.6%) and salpingitis isthmica nodosa (1.5%). fertility related conditions observed in this population

The presents data on the types of infertility among 196 individuals. It shows that 56 patients (28.6%) suffer from primary infertility, while 140 individuals (71.4%) experience secondary infertility. Overall, secondary infertility is more prevalent, making up the majority of cases in this population.

This table shows the comparison of Hysterosalpingography (HSG) findings across different age groups. Among younger age groups (18-21 and 22-24 years), the majority had normal HSG results, with only a few abnormal cases (7 and 4, respectively). As age increases, there were more abnormal findings, with the highest number of abnormalities observed in the 28-30 years age group (13 abnormal cases). However, no significant association was found between age and HSG results, as indicated by the p-value of 0.522

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Table2. Clinical characteristics of patients based on their HSG (hysterosalpingography) findings Association of age with HSG findings

No.	Clinical Characteristic	Category	N	%
1	HSG findings	Normal	144	73.5
		Abnormal	52	26.5
2	Blocked fallopian tube	Yes	42	21.4
		No	154	78.5
3	Type of blockage	Unilateral	41	20.9
		Bilateral	1	0.5
4	Unilateral blockage (side)	Left tube	22	11.2
		Right tube	19	9.7
5	History of ectopic pregnancy	Yes	1	0.5
		No	195	99.5
6	History of surgery	Yes	2	1.0
		No	194	99.0
7	Filling defect on HSG	Yes	3	1.5
		No	193	98.5
8	Type of infertility	Primary	56	28.6
		Secondary	140	71.4
9	Nature of uterine outline	Normal	156	79.6
		Left abnormal	23	11.7
		Right abnormal	16	8.2
		Both abnormal	1	0.5
10	Spillage of contrast media	Normal	152	77.6
		Abnormal	44	22.4
11	Congenital anomaly on HSG	Yes	7	3.6
		No	189	96.4
12	Type of congenital anomaly	Unicornuate	3	1.5
		Bicornuate	1	0.5
		Arcuate	2	1.0
		Others	2	1.0
13	Fibroids	Yes	1	0.5
		No	195	99.5
14	Cervical pathology	Yes	1	0.5
		No	195	99.5
15	Type of cervical pathology	Irregular	0	0
		Patulous	0	0

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

		Stenosis	1	0.5
16	Adenomyosis	Yes	0	0
		No	196	100
17	Hydrosalpinx	Yes	6	3.0
		No	190	97.0
18	Site of hydrosalpinx	Right tube	2	1.0
		Left tube	2	1.0
		Bilateral	2	1.0
19	Incidental findings	Venous extravasation	5	2.6
		Venous intravasation	3	1.5
		Salpingitis isthmica nodosa	3	1.5
20	Rotation of uterus	Yes	1	0.5
		No	195	99.5
21	Dilatation / carnova	Yes	1	0.5
		No	195	99.5

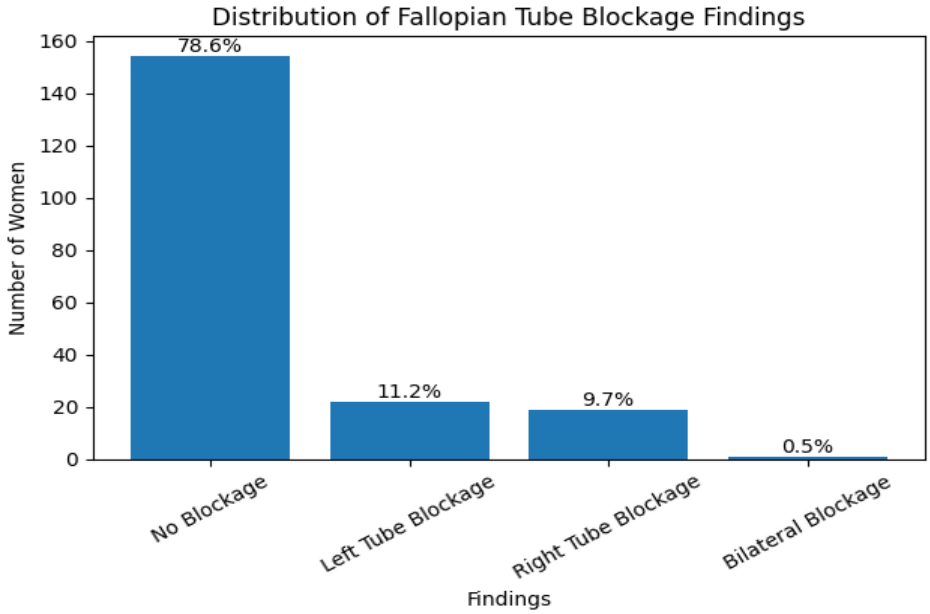


Figure1. Illustrates types of Tubal Blockages

The ***Table 3*** shows the comparison of Hysterosalpingography (HSG) findings across different age groups. Among younger age groups (18-21 and 22-24 years), the majority had normal HSG results, with only a few (increases, there were more abnormal findings, with the highest number of abnormalities observed in the 28-30 years age group (13 abnormal cases). However, no significant association was found between age and HSG results, as indicated by the p-value of 0.522

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Table3: Association of Age with HSG Findings

Age Group (Years)	Normal HSG (Majority)	Abnormal HSG (n)	Total (n)	p-value
18–21	Majority	7	–	
22–24	Majority	4	–	
25–27	Majority	–	–	
28–30	–	13	–	
Overall	–	–	–	**0.522**

Types of Congenital Anomalies:

Out of 196 patients, 7 patients had congenital anomalies. Unicornuate uterus was the most common among these anomalies, affecting 3 women (1.5%), Bicornuate uterus, and retroverted uterus, each affecting 1 woman (0.5%), and Arcuate uterus is found in 2 women (1.0%). Overall, these structural abnormalities are relatively rare in the population studied *(Figure 2).*

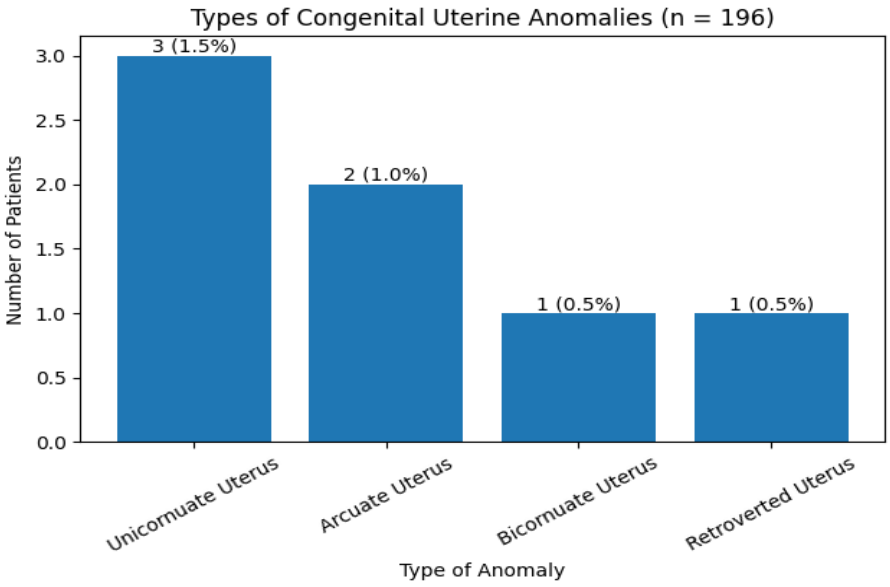


Figure 2.

Various Structural Abnormalities:

Among the 24 patients with structural abnormalities, hydrosalpinx was the most common, affecting 6 patients (25%). Venous extravasation of contrast was the second most frequent, occurring in 5 patients (20.8%). Other abnormalities included venous intravasation and salpingitis isthmica nodosa (12.5%), while cervical stenosis, ectopic pregnancy, uterine rotation, and history of tubal pregnancy each occurred in 1 patient (4.1%). Additionally, 2 patients (8.3%) had a surgical history, and 1 patient (4.1%) had cornual dilatation. Hydrosalpinx and venous abnormalities were the most prevalent structural issues *(Figure 3).*

Volume 4, Issue 3, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

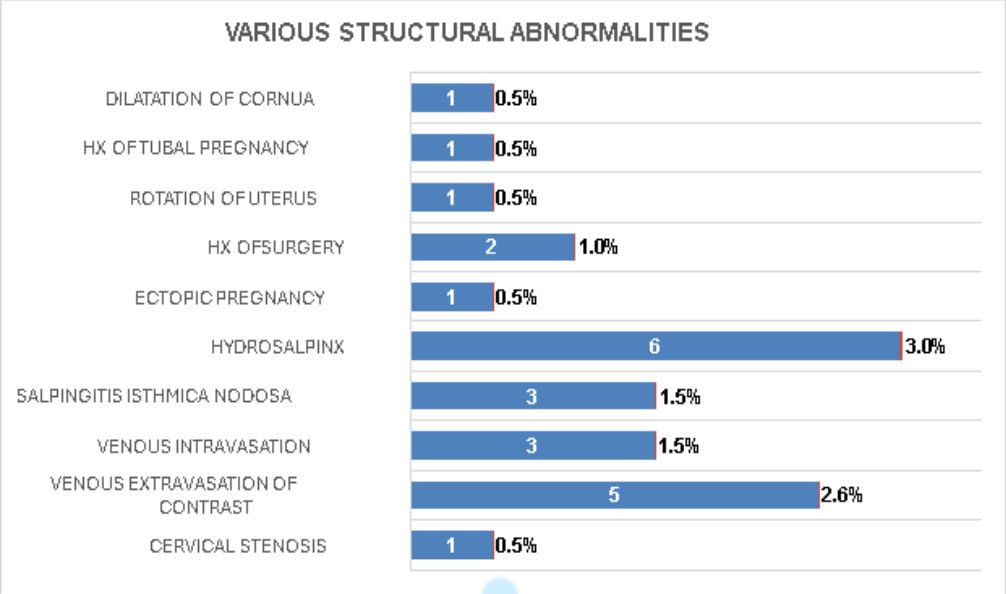


Figure 3. Shows Various Structural Abnormalities

Discussion:

Our study revealed that approximately one in four infertile women at a tertiary-care centre in KP exhibited a structural abnormality on HSG, broadly consistent with rates reported from Uganda (25–40 %) (Kavuma et al., 2016) and Nigeria (28.7 %) (Okoh et al., 2018). The predominance of unilateral tubal occlusion corroborates findings from Karachi (Riaz et al., 2022) and Kathmandu (Bhattarai & Pokhrel, 2017). Several explanations merit consideration.

First, the high frequency of unilateral over bilateral blockage may reflect partial preservation of tubal function following unilateral PID or post-surgical adhesions. Studies employing laparoscopy have demonstrated that mild endosalpingitis often begins asymmetrically (Tiboni et al., 2014). Second, delayed health-care-seeking behaviour in postpartum or post-abortal infections—frequently managed by untrained birth attendants—predisposes to unilateral cornual or mid-tubal scarring (Ahmed et al., 2019).

Hydrosalpinx prevalence (3.1 %) was lower than Nigerian series reporting 10–12 % (Okoh et al., 2018) but similar to Bangladeshi data (Sultana et al., 2018). Variations may stem from differing STI epidemiology, early antibiotic access, or subtle interpretation biases. Importantly, hydrosalpinx adversely affects in-vitro fertilization (IVF) outcomes; pre-IVF salpingectomy improves live-birth rates (Ahmed et al., 2020). Early detection via HSG therefore facilitates fertility-preserving intervention.

Uterine anomalies constituted 4.6 % of abnormalities—lower than 10–12 % reported in hysteroscopic studies (Grimbizis & Campo, 2010). As HSG has limited sensitivity for subtle intra-uterine lesions, our figure likely underestimates true prevalence. Nevertheless, the detection of unicornuate and arcuate uteri indicates a need for further 3-D ultrasound or MRI evaluation when clinical suspicion persists.

The strong association between secondary infertility and tubal disease aligns with global data attributing secondary infertility primarily to postpartum or post-abortal sepsis (Mascarenhas et al., 2012). Our logistic-regression model affirmed secondary infertility as an independent predictor even after adjusting for age and BMI. Public-health interventions in KP should therefore prioritise infection prevention—through skilled birth attendance, aseptic obstetric practice and timely treatment of STIs.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Unlike some Nigerian studies (Okoh et al., 2018), we did not find age to be a significant predictor of tubal blockage. This may be due to the relatively young mean age of our cohort (28.8 years). Similarly, BMI showed no association, contradicting research linking obesity with altered tubal function (Shaw et al., 2018). Larger multicentre studies with wider age and BMI ranges are warranted.

Strengths and Limitations

This study adds region-specific evidence, benefitting from rigorous double-reading of HSGs and robust statistical analysis. Inter-observer agreement was excellent ($\kappa = 0.89$). Limitations include its single-centre cross-sectional design, potential referral bias (women with severe disease may be referred elsewhere), and lack of correlation with laparoscopic findings. Furthermore, we did not evaluate male-factor infertility in depth; coupling HSG with semen analysis and hormonal profiling would provide a more comprehensive infertility work-up.

Implications for Practice and Policy

Our findings support the continued use of HSG as a frontline test in resource-constrained Pakistani settings. However, given HSG's limited sensitivity for endometriosis and peritoneal adhesions, negative results in high-risk women should prompt either hysteron-contrast sonography or laparoscopy. Policymakers should strengthen infection-control measures in obstetrics and gynecology departments, expand STI screening programmes, and subsidies selective salpingography and tubal recanalization services.

Future Research Directions

Prospective multicenter studies correlating HSG with laparoscopy could validate observed prevalence patterns. Molecular studies investigating *Chlamydia trachomatis*-specific antibodies in relation to tubal occlusion may unmask latent infection burdens. Finally, cost-effectiveness analyses comparing HSG-first versus laparoscopy-first algorithms in Pakistan could guide national protocols.

Conclusion:

In this cohort of 196 infertile Pakistani women, HSG detected structural abnormalities in 26.5 %, dominated by unilateral tubal occlusion. Secondary infertility nearly doubled the odds of tubal pathology, underscoring the consequences of preventable postpartum and post-abortal infections. While HSG cannot replace laparoscopy, it remains a pragmatic screening test in LMICs, enabling timely referral for surgical or assisted-reproductive solutions. Strengthening infection-prevention strategies and scaling up advanced reproductive services are essential to reduce the infertility burden in KP and beyond.

Recommendations

This study highlights tubal pathology, such as tubal blockage and hydrosalpinx, as a leading cause of infertility. Given the high prevalence of tubal issues, thorough evaluation and treatment of underlying conditions like PID before HSG is recommended. HSG screening should be encouraged for women with infertility, especially those at high risk of tubal obstructions. Raising awareness about the risks of secondary infertility with age and promoting early fertility-seeking behavior can be beneficial. Healthcare providers should focus on treatment options like surgery for tubal blockages.

Acknowledgments

We thank the radiography staff of RMI for technical assistance and the study participants for their cooperation.

Funding

No external funding was received. The research was self-funded by the investigators.

Conflicts of Interest

The authors declare no competing interests.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

REFERENCES:

Ahmed, A., Khan, S., & Jan, R. (2019). Post-partum sepsis and infertility in northern Pakistan. *Journal of Obstetrics and Gynaecology Research*, 45(4), 789–795. https://doi.org/10.1111/jog.13968

Ahmed, M., Tan, K., & Khan, R. (2020). Effect of salpingectomy on IVF outcomes in women with hydrosalpinx: A meta-analysis. *Reproductive BioMedicine Online*, 41(5), 911–920. Bhattarai, R., & Pokhrel, S. (2017). Pattern of hysterosalpingographic findings in infertility in Eastern Nepal. *Nepal Journal of Radiology*, 7(1), 18–24. Grimbizis, G. F., & Campo, R. (2010). Congenital malformations of the female genital tract: The need for a new classification system. *Fertility and Sterility*, 94(2), 401–407. Inhorn, M. C., & Patrizio, P. (2015). Infertility around the globe: New thinking on gender, reproductive technologies and global movements in the 21st century. *Human Reproduction Update*, 21(4), 411–426. Jawad, N., Ullah, H., & Ali, S. (2021). Accessibility barriers to diagnostic laparoscopy in Khyber Pakhtunkhwa. *Pakistan Journal of Surgery*, 37(3), 140–145. Kavuma, T., Mirembe, F., & Nakavuma, M. (2016). HSG findings among Ugandan women with infertility. *African Health Sciences*, 16(4), 1046–1053. Mascarenhas, M. N., Flaxman, S. R., Boerma, T., Vanderpoel, S., & Stevens, G. A. (2012). National, regional, and global trends in infertility prevalence since 1990: A systematic analysis. *PLoS Medicine*, 9(12), e1001356. Okoh, U., Ogbuagu, C., & Aronu, A. (2018). Hysterosalpingographic patterns of infertility in a Nigerian tertiary hospital. *Journal of Clinical Imaging Science*, 8(1), 34. Riaz, A., Shaikh, S., & Memon, S. (2022). Prevalence of tubal blockage on HSG among Pakistani women. *Pakistan Journal of Medical Sciences*, 38(2), 320–325. Shaw, J., Ferlin, A., & Agarwal, A. (2018). Obesity and female infertility: Mechanisms and management. *Human Reproduction Update*, 24(6), 798–812. Sultana, S., Begum, S., & Hamid, R. (2018). Hydrosalpinx on HSG as a marker of infertility. *Bangladesh Journal of Radiology and Imaging*, 26(2), 45–50. Tiboni, G. M., Concetti, A., & Cicolini, O. (2014). Unilateral asymptomatic salpingitis and infertility. *Journal of Obstetrics and Gynaecology*, 34(3), 236–240. World Health Organization. (2020). *Infertility prevalence estimates, 1990–2020*. WHO. Onwuchekwa, C., & Oriji, V. (2017). Hysterosalpingographic (HSG) pattern of infertility in women of reproductive age. *Journal of Human Reproductive Sciences*, *10*(3), 178–184. https://doi.org/10.4103/jhrs.JHRS_121_16 Oriji, P. , U. J. , & A. I. (2022). *Hysterosalpingography Findings among Women Presenting for Infertility Evaluation in Bayelsa State, South-South Nigeria*. Pk, S., Mk, G., Ahmad K, Ansari S, Agrawal N, & Rk, R. (2013). *Santhalia PK et al. Role of Radiographic Hysterosalpingography in Infertility in Eastern Nepal*. Riaz, M., Faiz, S., Fatima, R., Sattar, K., Islam, Z. U., Firdous, A., & Khan, M. (2022a). Hysterosalpingography Findings among Women Presenting for Infertility Evaluation. *Pakistan Journal of Medical and Health Sciences*, *16*(8), 217–219. https://doi.org/10.53350/pjmhs22168217 Riaz, M., Faiz, S., Fatima, R., Sattar, K., Islam, Z. U., Firdous, A., & Khan, M. (2022b). Hysterosalpingography Findings among Women Presenting for