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Case Series

Complexities in Managing 12 Cases of Primary Amenorrhea in a Rural Tertiary Centre in North Bihar: A Retrospective Case Series

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Conflict of interest: Nil

Abstract:

This case-series was compiled in a span of 11 months to identify most common cause of Primary Amenorrhea among cases attending GOPD, to know it's among patients attending GOPD and to depict the various modalities of treatment in such cases in MGM Medical College, Kishanganj, a Rural Tertiary Care Hospital in North-East Bihar.

The mean age was found to be14.8 years, most of them (58.3%)were in Upper Lower Class. The incidence of Primary Amenorrhea was 5.5% among adolescent patients attending gynae OPD and the most common cause of Primary Amenorrhea was Mullerian Agenesis (16.6%).

Management was done by Multidisciplinary approach based on aetio-pathology.

Keywords: Primary, Amenorrhoea, Mullerian, Agenesis.

Introduction

Primary amenorrhea is absence of menses by 13 years of age in the absence of growth or development of secondary sexual characteristics or, absence of menses by 15 years of age regardless of the presence of normal growth and development including secondary sexual characteristics. [1]

It affects 2%–5% of all women in reproductive age.

Objectives:

Primary: To identify most common cause of Primary Amenorrhea among cases attending GOPD, in MGM Medical College, Kishanganj, a Rural Tertiary Care Hospital in North-East Bihar. [2]

Secondary:

1. To know the incidence of Primary Amenorrhea among patients attending GOPD.
2. To depict the various modalities of treatment in cases with Primary Amenorrhea.

Methodology:

Period of study: 11 months (January - November 2023).

Place of study: Gynaec. OPD, MGM Medical College.

Study population: All cases of primary amenorrhea attending OPD.

Work up: History, clinical examination, investigations (UPT negative & other laboratory findings and imaging).

Informed and written consent from Parents/Legel Guardians were taken.

Management: Multidisciplinary approach based on aetio-pathology.

Results:

1. **Age:** Mean age 14.8 years

2. **SE Status:** (B.G Prasad classification)**:** 16.6% Lower Class, 58.3% Upper Lower Class, 25% Lower Middle Class

3. **Literacy:** 33.3% school going, 41.6% primary education and 25% illiterate.

4. **Population:** Rural.

5. **Co-morbidities:** 8.3% overweight (BMI – 23.83), 8.3% obese (BMI-25.81) and 41.6% underweight (BMI 17.78), 2 had hypothyroidism, 1 had tuberculosis,1 had skeletal defects, 1 had psychiatric disorder, 1 had surgical history, 1 had history of chemotherapy.

6. **Incidence of Primary Amenorrhea:** 5.5% among adolescent patients attending gynae OPD and

7. **The most common cause of Primary Amenorrhea:** Mullerian Agenesis (16.6%).

8. **Management:** Multidisciplinary approach based on aetio-pathology.

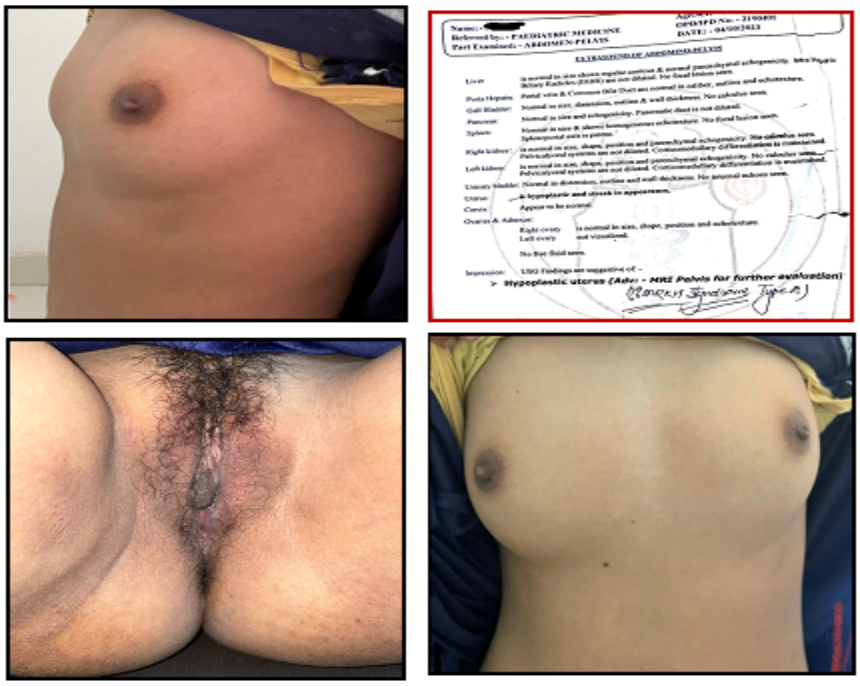
	CASE	Afsaana Khatoon	Sirat	Lakshmi Kumari	Fatma Parveen	Nusrat Jahan	Rokiya Khatoon	Roji Khatoon	Arshi	Jannatun Nisha	kailashi kumari	Nasreen Khatoo	Rizwana Khatoo
History	Age(years)	15	15	14	14	16	15	16	16	15	15	14	15
	Chief complaint	absent menses	absent menses	absent menses	absent menses	absent menses	absent menses	discharge from	referred from pe	absent menses	absent menses	absent menses	absent menses
	Family history	NA	NA	diagnosed pulm	NA	elder sister with	NA	NA	NA	NA	NA	NA	NA
	associated medical his	NA	NA	fever, weight los	NA	NA	hair loss and we	NA	under evaluation	k/c/o scoliosis	Diagnosed and t	Diagnosed case	h/o surgery for p
Examination	Height(cm)	153	160	151	152	150	155	148	133	138	150	152	136
	Weight(kg)	52	61	40	43	38	62	50	32	40	41	42	38
	BMI	22.21	23.83	17.54	18.61	16.89	25.81	22.83	18.09	21	18.22	18.18	20.54
	Breast tanner stage	3	2	1	2	3	3	4	4	2	2	2	1
	Pubic hair tanner stage	3	2	1	2	3	3	2	1	1	2	1	1
	Axillary hair	present	present	absent	present	present	present	present	absent	present	present	present	absent
	Associated findings	NA	NA	NA	NA	NA	NA	NA	facial puffiness,	Shield chest, we	NA	NA	NA
	External Genitalia	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Palpation	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	P/S examination	Blunt vagina	Blunt vagina	WNL	Bluish bludge +,	WNL	WNL	WNL	WNL	WNL	WNL	-	WNL
	P/V examination	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	P/R examination	uterine border co	consent not give	uterus fixed with	uterine bulge +,	WNL	WNL	WNL	WNL	Small size of ute	WNL	-	-
Investigations	UPT	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
	S. FSH (m IU/ml)	4.7	3.97	5.2	4.2	5.64	3.82	5.26	7.9	73.74	22.4	4.8	41.6
	S. LH (m IU/ml)	3.2	4.53	2.6	5.2	3.94	4.91	2.1	0.4	23.02	18	4.6	20.8
	S.Prolactin (mg/ml)	12.3	13.4	16	14.2	17.4	14.8	172.2	71.1	15.28	18.46	62.4	12.46
	S.Testosterone (ng/ml)	41	38.2	32.4	31.2	45.6	28.65	23.48	-	9.24	-	35.8	8.42
	S.Estradiol(pg/ml)	53.6	160	72.8	84.4	66.72	76.4	28.6	-	18	19.6	40.56	16.42
	S. TSH (uIU/mL)	0.79	1.24	1.62	0.66	1.58	78.949	1.88	150	1.93	2.24	1.28	2.68
	USG	Cord like structur	Crossed fused ri	B/L tubes dilated	Hematocolpos w	Normal study	Pelvis-Normal st	Normal study	Pelvis-bulky righ	Rudimentary ute	Normal study	Normal study	Infantile uterus w
	CT/MRI	-		Mild enhancing c	f/s/o hematocolp	-	-	F/S/O Pitutary I	Pitutary gland is	Uterine hypoplas	-	-	-
	Karyotyping	-	-	-	-	-	-	-	-	45-XO	-	-	-
	Additional investigatior	-	-	Hysterolaprosco	-	-	T.T4-3.8ug/dL T	-	x-ray wrist- Diffu	AMH-<0.13ng/m	AMH-0.8ng/mL	-	AMH 0.28ng/mL
Management	Diagnosis	MRKH-A	MRKH-B	Genital tubercul	Imperforated hyr	Suspected Cons	Hypothyroidism	Prolactinoma	Pickardt syndron	Turner's Syndror	Chemotherapy ir	Drug induced hy	Primary amenorr
	Management	-	-	ATT	Cruliate hymen i	Counselling don	medical manage	Cabergoline	cabergoline and	HRT	HRT	cabergoline alon	HRT
	Counselling	Extensive	Extensive	Extensive	for followup	Extensive	done	for follow up	extensive	extensive	extensive	for follow up	extensive

Discussion

Case 1 [Mrkh-A]:

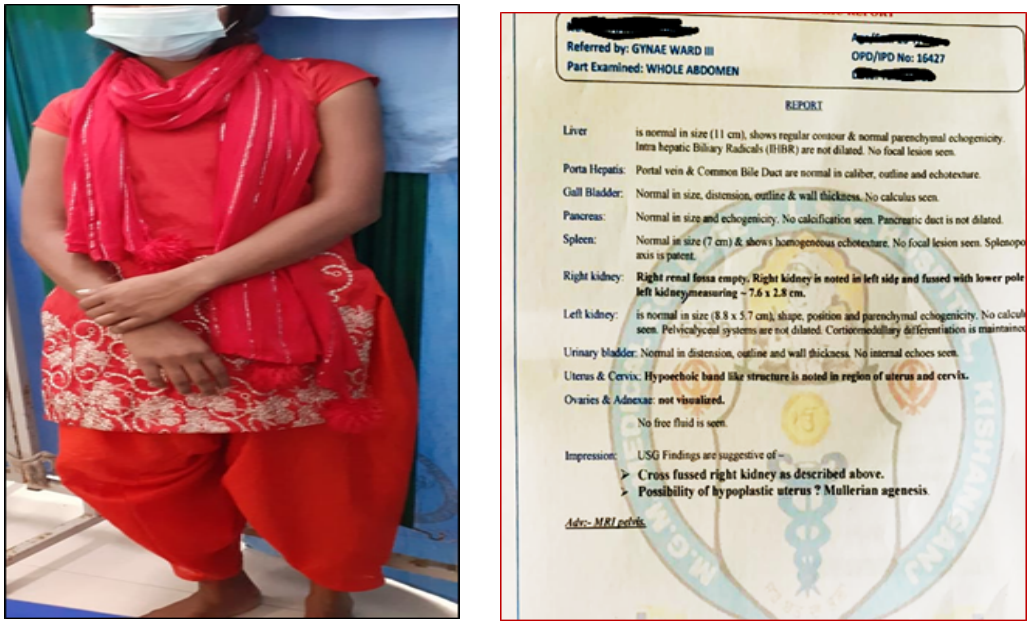
A 15 years old unmarried girl with negative urine pregnancy test, presented with complaint of absent menses. There was no associated family or medical or surgical history. On examination patient had a height of 153cm, weight of 52kgs and BMI of 22.21, breasts had Tanner staging of 3 and pubic hair Tanner staging of 3. External genitalia appeared normal. [3] Per speculum examination showed blunt vagina and uterine border could not be made out in per rectal examination. Blood examination showed S. FSH 4.7 mIU/ml, S. LH 3.2 m IU/ml, S. Prolactin 12.3 mg/ml, S. Testosterone 41 ng/ml, S. Estradiol 53.6 pg/ml, S. TSH 0.79 uIU/mL, USG suggested Cord like structure noted in the region of uterus-likely severely dysplastic uterus, additional investigations were not done due to monitory insufficiency. [4] she was diagnosed as a case of MRKH-A and extensive counselling alongside parents was done.

[5]



Case 2 [Mrkh-B]:

A 15 years old unmarried girl with negative urine pregnancy test, presented with complaint of absent menses. There was no associated family or medical or surgical history. On examination patient had a height of 160cm,weight of 61kgs and BMI of 23.83,breast showed Tanner staging of 2 and pubic hair Tanner staging of 2. External genitalia appeared normal. Per speculum examination showed blunt vagina and per rectal examination was denied by patient. Blood examination showed S. FSH 3.97mIU/ml, S. LH 4.53 m IU/ml, S. Prolactin 13.4 mg/ml, S. Testosterone 38.2 ng/ml, S. Estradiol 160pg/ml, S. TSH 1.24 uIU/mL, USG suggested Crossed fused right kidney, hypoechoic band like structure noted in region of uterus and cervix, additional investigations were not done due to monitory insufficiency. she was diagnosed as a case of MRKH-B and extensive counselling alongside parents was done. [6]

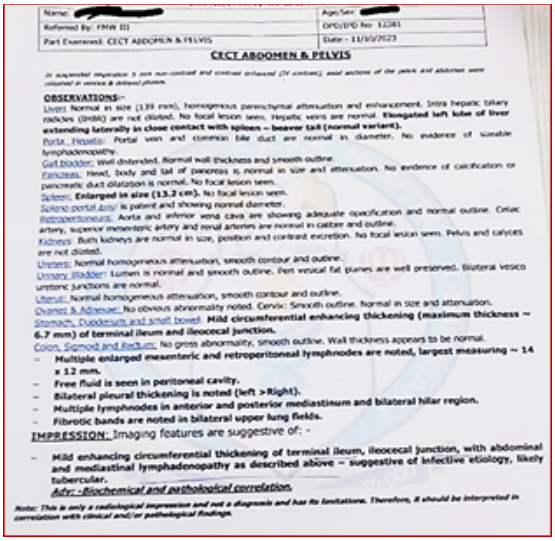


CASE 3 [Disseminated Tuberculosis]:

A 14 years old unmarried girl with negative urine pregnancy test, presented with complaint of absent menses. She was recently diagnosed and being treated for extrapulmonary tuberculosis. She belonged to underprivileged and low socio-economic status and family history of pulmonary tuberculosis in father who was a defaulter of

treatment. On examination patient had a height of 151cm, weight of 40kgs and BMI of 17.54, breast Tanner staging of 1 and pubic hair Tanner staging of 1. External genitalia appeared normal. [7] Per speculum examination showed normal vagina and per rectal examination suggested uterus fixed with absent mobility. Blood examination showed S. FSH 5.2mIU/ml, S. LH 2.6 m IU/ml, S. Prolactin 16mg/ml, S. Testosterone 32.4 ng/ml, S. Estradiol 72.8pg/ml, S. TSH 1.62 uIU/mL, USG showed B/L tubes dilated, thickened with evidence of pus; i.e. suspected pyosalpinx, CEMRI showed Mild enhancing circumferential thickening of terminal ileum, ileocecal junction, with abdominal and mediastinal lymphadenopathy as described- s/o infective etiology, likely tubercular B/L pleural thickening is noted (Lt> Rt), Multiple lymphnodes in anterior and posterior mediastinum and B/L hilar region, fibrotic bands are noted in B/L upper lung fields. [8] Hystero-laproscopy showed presence of uterine synechia, ostia not visualized, B/L tube congested and oedematous, with Histology: epithelioid granuloma with caseous necrosis, and culture: M. tuberculosis. she was diagnosed as a case of Genital tuberculosis and continued Anti-tubercular treatment.

[9]



CECT ABDOMEN & PELVIS

OBSERVATIONS:-

Liver: Normal in size (139 mm), homogenous parenchymal attenuation and enhancement. Intra hepatic biliary radicles (IHBR) are not dilated. No focal lesion seen. Hepatic veins are normal. **Elongated left lobe of liver extending laterally in close contact with spleen – beaver tail (normal variant).**

Porta Hepatis: Portal vein and common bile duct are normal in diameter. No evidence of sizeable lymphadenopathy.

Gall bladder: Well distended. Normal wall thickness and smooth outline.

Pancreas: Head, body and tail of pancreas is normal in size and attenuation. No evidence of calcification or pancreatic duct dilatation is normal. No focal lesion seen.

Spleen: **Enlarged in size (13.2 cm).** No focal lesion seen.

Splenic portal axis: is patent and showing normal diameter.

Retroperitoneum: Aorta and inferior vena cava are showing adequate opacification and normal outline. Celiac artery, superior mesenteric artery and renal arteries are normal in calibre and outline.

Kidneys: Both kidneys are normal in size, position and contrast excretion. No focal lesion seen. Pelvis and calyces are not dilated.

Ureters: Normal homogeneous attenuation, smooth contour and outline.

Urinary Bladder: Lumen is normal and smooth outline. Peri vesical fat planes are well preserved. Bilateral vesico ureteric junctions are normal.

Uterus: Normal homogeneous attenuation, smooth contour and outline.

Ovaries & Adnexae: No obvious abnormality noted. Cervix: Smooth outline. Normal in size and attenuation.

Stomach, Duodenum and small bowel: **Mild circumferential enhancing thickening (maximum thickness ~ 6.7 mm) of terminal ileum and ileocecal junction.**

Colon, Sigmoid and Rectum: No gross abnormality, smooth outline. Wall thickness appears to be normal.

- **Multiple enlarged mesenteric and retroperitoneal lymphnodes are noted, largest measuring ~ 14 x 12 mm.**
- **Free fluid is seen in peritoneal cavity.**
- **Bilateral pleural thickening is noted (left >Right).**
- **Multiple lymphnodes in anterior and posterior mediastinum and bilateral hilar region.**
- **Fibrotic bands are noted in bilateral upper lung fields.**

IMPRESSION: Imaging features are suggestive of: -

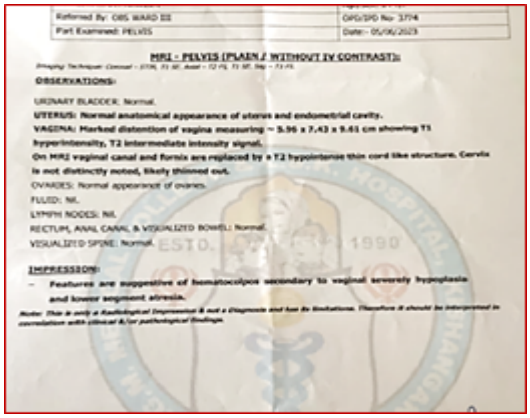
- **Mild enhancing circumferential thickening of terminal ileum, ileocecal junction, with abdominal and mediastinal lymphadenopathy as described above – suggestive of infective etiology, likely tubercular.**

Adv: -Biochemical and pathological correlation.

Note: This is only a radiological impression and not a diagnosis and has its limitations. Therefore, it should be interpreted in correlation with clinical and/or pathological findings.

CASE 4 [Imperforate Hymen]:

A 14 years old unmarried girl with negative urine pregnancy test, presented with complaint of absent menses with cyclical pain abdomen for 6 months. There was no associated family or medical or surgical history. On examination patient had a height of 152cm, weight of 43kgs and BMI of 18.61, breast Tanner staging of 2 and pubic hair Tanner staging of 2. External genitalia appeared normal. Per speculum examination showed Bluish bulge with intact hymenand per rectal examination suggested mobile uterine bulge. Blood examination showed S. FSH 4.2mIU/ml, S. LH 5.2 m IU/ml, S. Prolactin 14.2mg/ml, S.T estosterone 31.2 ng/ml, S. Estradiol 84.4pg/ml, S. TSH 0.86 uIU/mL, USG showed Hematocolpos with hematometra, CEMRI showed f/s/o Hematocolpos secondary to vaginal severely hypoplasia and lower segment atresia. she was diagnosed as a case of Imperforated hymen (Cryptomenorrhea) and treated via Cruciate hymen incision with drainage of collected blood.



MRI - PELVIS (PLAIN / WITHOUT IV CONTRAST):

OBSERVATIONS:

URINARY BLADDER: Normal.

UTERUS: Normal anatomical appearance of uterus and endometrial cavity.

VAGINA: Marked distention of vagina measuring ~ 5.96 x 7.43 x 9.61 cm showing T1 hyperintensity, T2 intermediate intensity signal.

On MRI vaginal canal and fornix are replaced by a T2 hypointense thin cord like structure. Cervix is not distinctly noted, likely thinned out.

OVARIES: Normal appearance of ovaries.

FLUID: Nil.

LYMPH NODES: Nil.

RECTUM, ANAL CANAL & VISUALIZED BOWEL: Normal.

VISUALIZED SPINE: Normal.

IMPRESSION:

- **Features are suggestive of hematocolpos secondary to vaginal severely hypoplasia and lower segment atresia.**

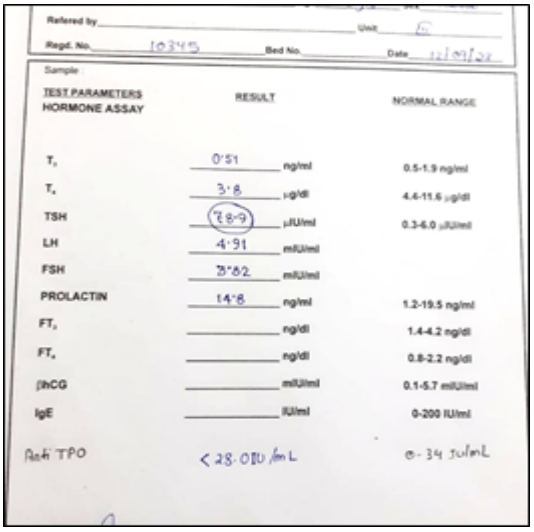
Note: This is only a Radiological Impression & not a Diagnosis and has its limitations. Therefore it should be interpreted in correlation with clinical &/or pathological findings.

CASE 5 [Constitutional Delay]:

A 16 years old unmarried girl with negative urine pregnancy test, presented with complaint of absent menses. Elder sister had a history of delayed onset of menarche. On examination patient had a height of 150cm, weight of 38kgs and BMI of 16.89, breast Tanner staging of 3 and pubic hair Tanner staging of 3. External genitalia appeared normal. Per speculum examination showed normal vagina and per rectal examination suggested normal uterus. Blood examination showed S. FSH 5.64mIU/ml, S. LH 3.94 m IU/ml, S. Testosterone 45.6 ng/ml, S. Estradiol 66.72 pg/ml, S. Prolactin 17.4mg/ml, S. Testosterone 45.6 ng/ml, S. Estradiol 66.72pg/ml, S. TSH 1.58 uIU/mL, USG showed normal finding. she was diagnosed as a case of Constitutional Delay and adequate counselling along with follow up was done.

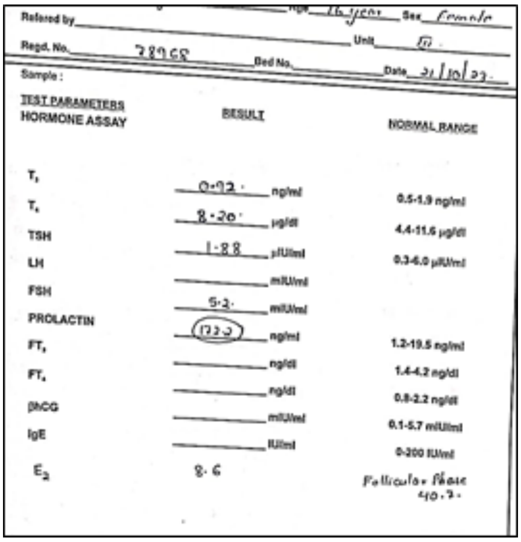
CASE 6 [Hypothyroidism]:

A 15 years old unmarried girl with negative urine pregnancy test, presented with a complaint of absent menses. She has % hair loss and weight gain in past 1 year. On examination patient had a height of 155cm weight of 62kgs and BMI of 25.81, breast Tanner staging of 3 and pubic hair Tanner staging of 3. External genitalia appeared normal. Per speculum examination showed normal vagina and per rectal examination suggested uterus fixed with absent mobility. Blood examination showed S. FSH 3.82 mIU/ml, S. LH 4.91 m IU/ml, S. Testosterone 28.65 ng/ml, S. Estradiol 76.4 pg/ml, S.Prolactin 14.8 mg/ml, S. Testosterone 28.65 ng/ml, S. Estradiol 76.4 pg/ml, S. TSH 78.949 uIU/mL,T.T4-3.8ug/dL T3-0.51ng/mL Anti-TPO-<28.0IU/mL. USG pelvis and neck showed normal findings. she was diagnosed as a case of Hypothyroidism and started on 100mcg of levothyroxine.



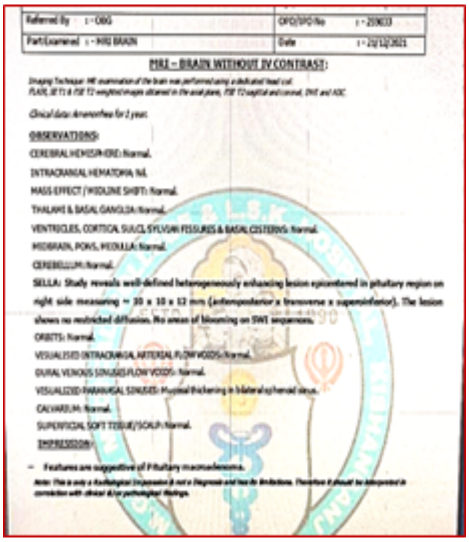
CASE 7 [Prolactinoma]:

A 16 years old unmarried girl with negative urine pregnancy test, presented with complaints of absent menses and discharge from B/L nipple and Pain for 15 days. There was no associated family or medical or surgical history. On examination patient had a height of 148cm, weight of 50kgs and BMI of 22.83,breast Tanner staging of 4 and pubic hair Tanner staging of 2. External genitalia appeared normal. Per speculum and per rectal examination showed normal vagina and uterus respectively. Blood examination showed S. FSH 5.26 mIU/ml, S. LH 2.1m IU/ml,S. Testosterone 23.48 ng/ml, S. Estradiol 28.6 pg/ml, S.Prolactin 172.2 mg/ml, S. Testosterone 23.48 ng/ml, S. Estradiol 28.6 pg/ml, S. TSH 1.88 uIU/mL, USG pelvis suggested normal finding, NCCT showed F/S/O Pituitary Macroadenoma. she was diagnosed as a case of Prolactinoma and treated by cabergoline 0.5mg twice weekly for 6weeks and follow up.



Referred by
Age 16 years Sex Female
Regd. No. 28968 Unit
Bed No. Date 21/10/22
Sample :

TEST PARAMETERS HORMONE ASSAY	RESULT	NORMAL RANGE
T_3	0.92 ng/ml	0.5-1.9 ng/ml
T_4	8.20 µg/dl	4.4-11.6 µg/dl
TSH	1.88 µIU/ml	0.3-6.0 µIU/ml
LH	mIU/ml	
FSH	5.2 mIU/ml	
PROLACTIN	172.2 ng/ml	1.2-19.5 ng/ml
FT_3	ng/dl	1.4-4.2 ng/dl
FT_4	ng/dl	0.8-2.2 ng/dl
βhCG	mIU/ml	0.1-5.7 mIU/ml
IgE	IU/ml	0-200 IU/ml
E_2	8.6	Follicular Phase 40.7



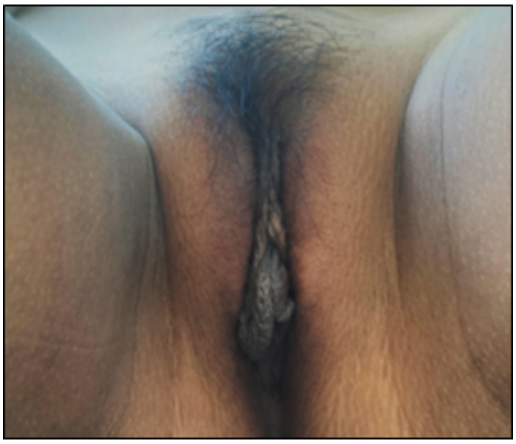
Referred By : OBG
Part Examined : MRI BRAIN
Date :

MRI – BRAIN WITHOUT IV CONTRAST:

Clinical data: Amenorrhea for 1 year.

OBSERVATIONS:
CEREBRAL HEMISPHERE: Normal.
INTRACRANIAL HEMATOMA: Nil.
MASS EFFECT / MIDLINE SHIFT: Normal.
THALAMI & BASAL GANGLIA: Normal.
VENTRICLES, CORTICAL SULCI, SYLVIAN FISSURES & BASAL CISTERNS: Normal.
MIDBRAIN, PONS, MEDULLA: Normal.
CEREBELLUM: Normal.
SELLA: Study reveals well-defined heterogeneously enhancing lesion epicentered in pituitary region on right side measuring ~ 10 x 10 x 12 mm (anteroposterior x transverse x superoinferior). The lesion shows no restricted diffusion. No areas of blooming on SWI sequences.
ORBITS: Normal.
VISUALISED INTRACRANIAL ARTERIAL FLOW VOIDS: Normal.
DURAL VENOUS SINUSES FLOW VOIDS: Normal.
VISUALIZED PARANASAL SINUSES: Mucosal thickening in bilateral sphenoid sinus.
CALVARIUM: Normal.
SUPERFICIAL SOFT TISSUE/SCALP: Normal.

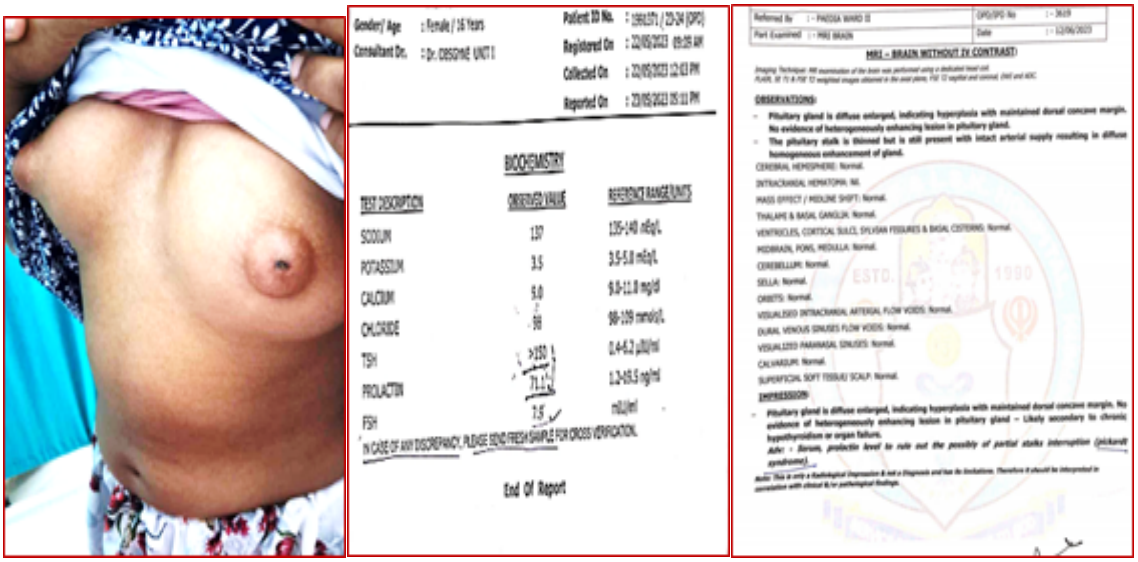
IMPRESSION:
- Features are suggestive of Pituitary macroadenoma.



CASE 8 [Congenital Hypothyroidism + Hyperprolactinemia - Pickardt's Syndrome]:

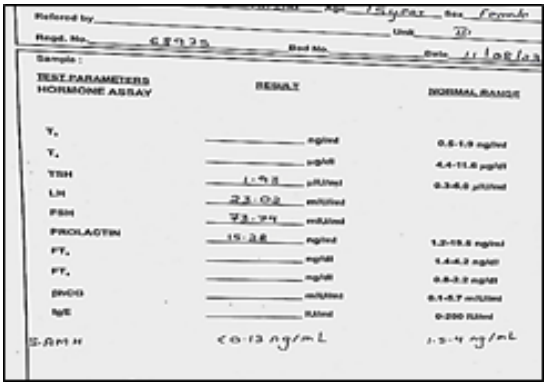
A 16 years old unmarried girl with negative urine pregnancy test, under evaluation for short stature with primary hypothyroidism presented with complaint of absent menses. There was no associated family history. On examination patient had a height of 133cm weight of 32kgs and BMI of 18.09, breast Tanner staging of 4 and pubic hair Tanner staging of 1, facial puffiness, shield chest, inverted nipple with edematous areola. External genitalia appeared normal. Per speculum and per rectal examination showed normal vagina and uterus respectively. Blood examination showed S. FSH 7.9 mIU/ml, S. LH 0.4 m IU/ml, S. Prolactin 71.1 mg/ml, S. TSH 150 uIU/mL, USG Pelvis-bulky right ovary; neck-f/s/o thyroiditis likely of autoimmune etiology in a background of hypothyroidism, No evidence of heterogeneously enhancing lesion in pituitary gland- likely secondary to chronic hypothyroidism or organ failure. MRI-brain showed Pituitary gland is diffuse enlarged, indicating hyperplasia with maintained dorsal concave margin. x-ray wrist-Diffuse osteogenic changes and AMA- >1000IU/mL; Anti-TG- 21.8IU/mL. she was diagnosed as a case of *Pickardt's Syndrome* and

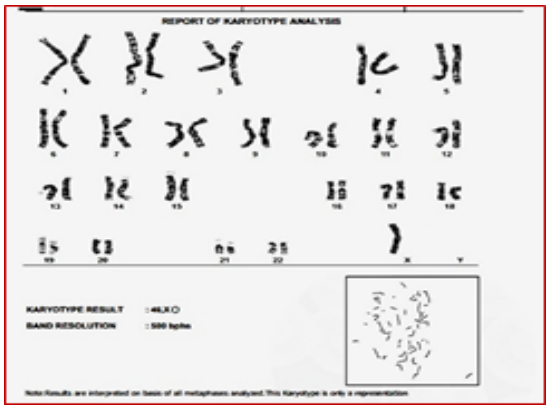
treated on cabergoline 0.5mg weekly for 4 weeks and levothyroxine 100mcg OD and follow up.



CASE 9 [Turner's Syndrome]:

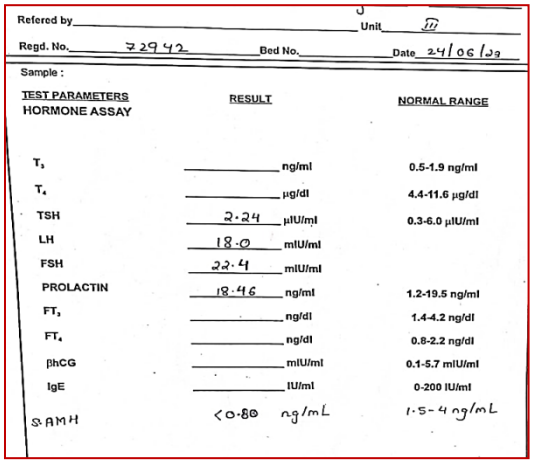
A 15 years old unmarried girl with negative urine pregnancy test, k/c/o Turner's syndrome presented with complaint of absent menses. There was no associated family history. On examination patient had a height of 138cm, weight of 40kgs and BMI of 21,breast Tanner staging of 1 and pubic hair Tanner staging of 1,Shield chest, webbed neck, low hairline, scoliosis. External genitalia appeared normal. Per speculum and per rectal examination showed normal vagina and small sized uterus respectively. Blood examination showed S. FSH 73.74 mIU/ml, S. LH 23.02 m IU/ml, S. Testosterone 9.24 ng/ml,S.Estradiol 18 pg/ml, S. Prolactin 15.28 mg/ml, S. TSH 1.93 uIU/mL, AMH-<0.13ng/mL, USG Pelvis-Rudimentary uterus, right and left ovaries cannot be assessed.MRI-Pelvis Uterine hypoplasia with streak ovaries. Karyotyping showed 45-XO Genotype. She was diagnosed as a case of *Primary Amenorrhea d/t turner's syndrome* and started on HRT, counselling and follow up.





CASE 10 [Chemotherapy induced]:

A 15 years old unmarried girl with negative urine pregnancy test, Diagnosed and treated case of ALL 3years back; induction regimen(4week)-cyclophosphamide, vincristine, daunorubicin, L-asparginase and prednisone maintenance regimen(2year)- 6-MP,methotrexate,vincristine and prednisone. There was no associated family history. On examination patient had a height of 150cm, weight of 41kgs and BMI of 18.22,breast Tanner staging of 2 and pubic hair Tanner staging of 2. External genitalia appeared normal. Per speculum and per rectal examination showed normal vagina and uterus respectively. Blood examination showed S. FSH 22.4 mIU/ml, S. LH 18 m IU/ml, S. Estradiol 19.6 pg/ml, S.Prolactin 18.46 mg/ml, S. TSH 2.24 uIU/mL, AMH-0.89ng/mL, USG Pelvis-normal. She was diagnosed as a case of Chemotherapy induced POI and started on HRT, counselling and follow up.



Refered by _____ Unit III

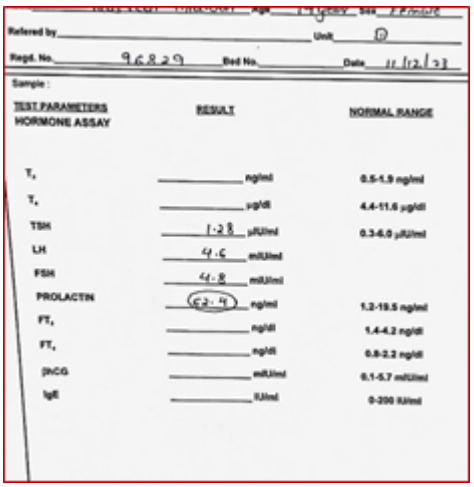
Regd. No. 72942 Bed No. _____ Date 24/06/23

Sample :

TEST PARAMETERS HORMONE ASSAY	RESULT	NORMAL RANGE
T_3	_____ ng/ml	0.5-1.9 ng/ml
T_4	_____ µg/dl	4.4-11.6 µg/dl
TSH	2.24 µIU/ml	0.3-6.0 µIU/ml
LH	18.0 mIU/ml	
FSH	22.4 mIU/ml	
PROLACTIN	18.46 ng/ml	1.2-19.5 ng/ml
FT_3	_____ ng/dl	1.4-4.2 ng/dl
FT_4	_____ ng/dl	0.8-2.2 ng/dl
βhCG	_____ mIU/ml	0.1-5.7 mIU/ml
IgE	_____ IU/ml	0-200 IU/ml
S. AMH	<0.80 ng/mL	1.5-4 ng/mL

CASE 11 [Drug induced hyperprolactinemia]:

A 14 years old unmarried girl with negative urine pregnancy test, Diagnosed case of Autistic spectrum disorder for 3 years with self-injury, aggression, irritability and destructive tendencies-on Resperidone for 1 year -2mg/day. There was no associated family history. On examination patient had a height of 152cm weight of 42kgs and BMI of 18.18,breast Tanner staging of 2 and pubic hair Tanner staging of 1. External genitalia appeared normal. Per speculum and per rectal examination showed normal vagina and uterus respectively. Blood examination showed S. FSH 4.8 mIU/ml, S. LH 4.6 m IU/ml, S. Testosterone 30.8 ng/ml, S. Estradiol 40.56 pg/ml, S. Prolactin 62.4 mg/ml, S. TSH 1.28 uIU/mL, USG Pelvis-normal. She was diagnosed as a case of Drug-induced hyperprolactinemia and started on cabergoline along with reduction of Resperidone dose/ use of alternative drug, counselling and follow up.

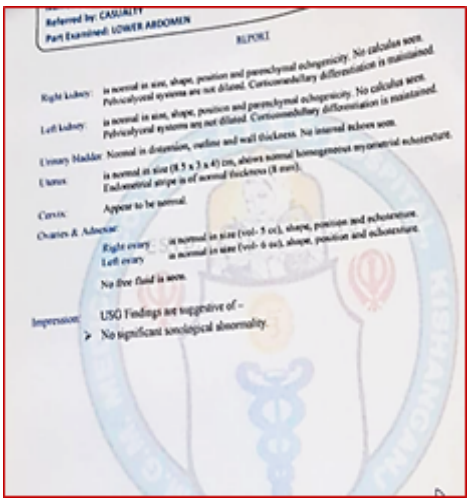


Refered by _____ Unit D

Regd. No. 96829 Bed No. _____ Date 11/12/23

Sample :

TEST PARAMETERS HORMONE ASSAY	RESULT	NORMAL RANGE
T_3	_____ ng/ml	0.5-1.9 ng/ml
T_4	_____ µg/dl	4.4-11.6 µg/dl
TSH	1.28 µIU/ml	0.3-6.0 µIU/ml
LH	4.6 mIU/ml	
FSH	4.8 mIU/ml	
PROLACTIN	(62.4) ng/ml	1.2-19.5 ng/ml
FT_3	_____ ng/dl	1.4-4.2 ng/dl
FT_4	_____ ng/dl	0.8-2.2 ng/dl
βhCG	_____ mIU/ml	0.1-5.7 mIU/ml
IgE	_____ IU/ml	0-200 IU/ml



Referred by: CASUALTY

Part Examined: LOWER ABDOMEN

REPORT

Right Kidney: is normal in size, shape, position and parenchymal echogenicity. No calculus seen. Pelvicalyceal systems are not dilated. Corticomedullary differentiation is maintained.

Left Kidney: is normal in size, shape, position and parenchymal echogenicity. No calculus seen. Pelvicalyceal systems are not dilated. Corticomedullary differentiation is maintained.

Urinary Bladder: Normal in distension, outline and wall thickness. No internal echoes seen.

Uterus: is normal in size (8.5 x 3 x 4) cm, shows normal homogeneous myometrial echotexture. Endometrial stripe is of normal thickness (8 mm).

Cervix: Appear to be normal.

Ovaries & Adnexae:

Right ovary: is normal in size (vol- 5 cc), shape, position and echotexture.

Left ovary: is normal in size (vol- 6 cc), shape, position and echotexture.

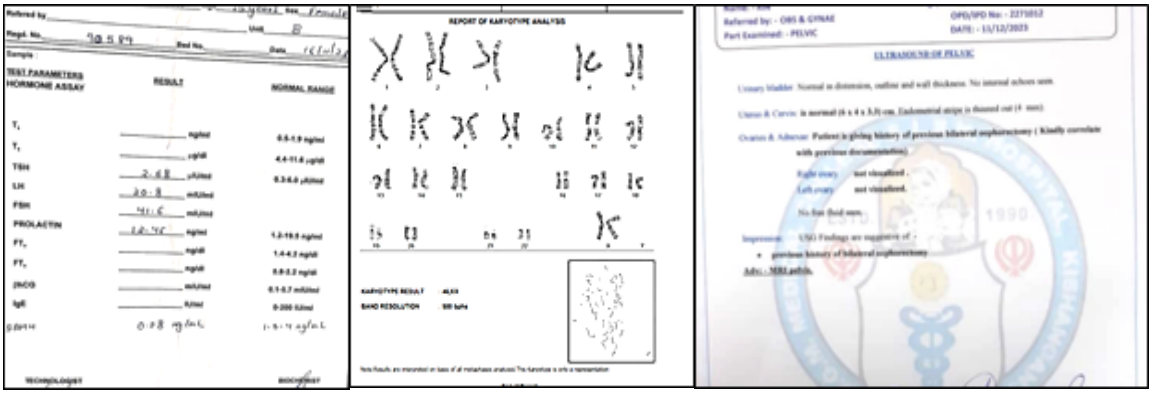
No free fluid is seen.

Impression: USG Findings are suggestive of –

- No significant sonological abnormality.

CASE 12 [Surgically Induced/Iatrogenic]:

A 15 years old unmarried girl with negative urine pregnancy test, h/o surgery for pelvic tumor(no documentation) 3 years back. There was no associated family history. On examination, patient had a height of 136cm, weight of 38kgs and BMI of 20.54, breast Tanner staging of 1 and pubic hair Tanner staging of 1. External genitalia appeared normal. Per speculum and per rectal examination showed normal vagina and uterus respectively. Blood examination showed S. FSH 41.6 mIU/ml, S. LH 20.8 m IU/ml, S. Testosterone 8.42 ng/ml, S. Estradiol 16.42 pg/ml, S. Prolactin 12.46 mg/ml, S. TSH 2.68 uIU/mL, AMH 0.28ng/mL, USG Pelvis-Infantile uterus with B/L ovaries cannot be visualised (H/O surgical removal). She was diagnosed as a case of Primary amenorrhea secondary to B/L oophorectomy and started on HRT, counselling and follow up.



SUMMARY:		
MRKH - (A&B)	2	(16.6%)
Disseminated Tuberculosis	1	(8.3%)
Cryptomenorrhea	1	(8.3%)
Constitutional delay	1	(8.3%)
Hypothyroidism	1	(8.3%)
Prolactinoma	1	(8.3%)
Pickardt's Syndrome	1	(8.3%)
Turner's Syndrome	1	(8.3%)
Chemotherapy Induced	1	(8.3%)
Drug Induced Hyperprolactinemia	1	(8.3%)
Surgically induced	1	(8.3%)

Comparative Studies:

1.	Su- mita Verma et al. Case Series of Primary Amenorrhoea at PMCH, Patna. IJSDR, v8, Jan 23: 1056-1060	1.5%	Gonadal Dysgenesis (44%)
2.	Pavanagan- ga A et al. Int J Reprod Contracept ObstetGynecol. 201 9 Sep;8(9):3442-344	2.0	MRKH (36%
3.	Kripla- ni A et al. Aetiology and management of primary amen or- rhoea: a study of 102 cases at tertiary centre. Taiwan J Obstet Gynaecol. 2017;56(6):761-4.	3.0%	Mullerian agenesis (47%)
4.	An- itha GS et al. Clinical study of primary amenorrhoea. J South Asian Federation Obstet Gynaecol. 2015;7(3):158	2.5	Complete AIS (60%
5.	Tanmaha- saut P. et al (2012), Causes of primary amenorrhea: A r port of 295 cases in Thailand. Journal of Obstetrics and Gynaecology Research, 38: 297-30	2.2%	Müllerian agenesis (39.7%
6.	Our Study 2023	5.5%	MRKH (16.6%)

Conclusion

1. Most common cause of Primary Amenorrhea- Mullerian Agenesis (16.6%).
2. Incidence of Primary Amenorrhea- 5.5% [12/217] among adolescent patient attending gynae OPD, MGM Medical College.
3. Management- Multidisciplinary approach including social bodies like NGO's.

Limitations of our Study:

1. It is a small-scale study for short duration.

2. Loss of follow-up due to social stigma.

3. Monitory restrictions for advanced investigations.

Author Contributions: All authors are involved in diagnosing and treatment, including interventions, while the corresponding author wrote the case report. All authors contributed to literature review, data analysis, drafting or revising the article, gave final approval of the version to be published, agreed to the journal submitted, and agreed to be accountable for all aspects of the work.

Informed Consent: Written informed consent was obtained from the patient for their anonymized information to be published in this article.

Patient Consent: Informed written consent has been obtained from the patient for all case details and images to be reported in the journal.

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Conflict of Interest: The authors declared no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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