MEDi talk

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healthier world for everyone!

TRANSFORMING HEALTHCARE IN AFRICA

MEDi talk

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RENAL HYPERPARATHYROIDISM: OUR EXPERIENCE AND MANAGEMENT PROTOCOL; SIMULTANEOUS EXCISION OF PARATHYROID ADENOMA WITH RENAL TRANSPLANT

CR 1

FIRST TIME IN WORLD LITERATURE

BACKGROUND

Renal Hyperparathyroidism (rHPT) is a common complication of Chronic Kidney Disease (CKD) characterized by elevated parathyroid hormone levels secondary to deranged homeostasis of calcium, phosphate, and vitamin D. It leads to increased rates of cardiovascular problems and bone disease.

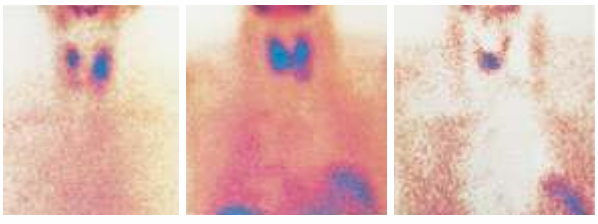
The Kidney Disease: Improving global outcomes guidelines recommend that screening and management of rHPT be initiated for all patients with Chronic Kidney Disease stage 3. Since the 1990s, improving medical management with vitamin D-analogues, phosphate binders, and calcimimetic drugs has expanded the treatment options for patients with rHPT, but some patients still require a parathyroidectomy to mitigate the sequelae of this challenging disease.

We describe our experience of rHPT in 6 patients for which neck exploration and excision of parathyroid adenoma or hyperplastic gland was done.

METHODS / TREATMENT PROTOCOL

CRF patients on dialysis being evaluated for kidney transplants were screened for serum parathyroid hormone (iPTH level) along with serum calcium and phosphate. Almost all CRF / ESRD patients have elevated PTH level 200-400pg/ml (normal ←70pg/ml). Those with very high PTH level (→1000pg/ml) were given pulse vitamin D3 (Calcitriol) therapy as well as calcimimetic drug cinacalcet along with Calcium carbonate supplement for a month.

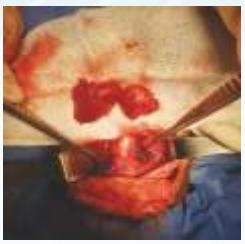
Patients who responded to above treatment with reduction of PTH were planned for renal transplant after all other parameters were checked. Those who didn't respond and PTH remained elevated were subjected to sestamibi scan to look for hyperactive nodule (parathyroid adenoma), ultrasound neck (enlarged gland) and surgical excision of enlarged parathyroid gland.



Intra-operative frozen section (squash cytology) of the gland removed to confirm adenoma or hyperplasia gland and monitoring of serum PTH 15min after removal of enlarged inferior parathyroid to ensure adequacy of surgery (Serum PTH should fall to half of the baseline) was done. If serum PTH still remained high, it indicates to look for enlarged superior parathyroid gland and its removal.
Post-operative serum calcium monitored every 4hourly x 48 hrs, with intravenous calcium infusion. Serum PTH level monitored 6 hourly for 24 hours and then daily for 3 days.

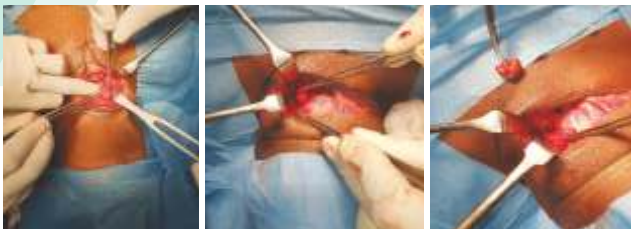
RESULTS

Out of 145 kidney transplants done so far within 2 years in our centre, about 30% patients had elevated PTH level up to 400pg (normal 70), who were managed with oral calcium and vitamin D supplement and phosphate binders as routine in CKD patients. Those with PTH 400 to 1000 were given high dose vitamin D3 (60000 U weekly x 12 weeks) along with calcium carbonate and phosphate binders (sevelamer carbonate). 10 patients had very high PTH level (→1000pg/ml) treated with pulse Calcitriol (vit D3 high dose) + Cinacalcet therapy – 4 of them responded with reduction of PTH below 400pg.

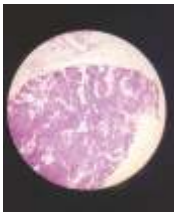


Six patients had high PTH level on therapy (Tertiary hyper-parathyroid) due to autonomous nodules / hyperactive parathyroid glands on Sestamibi scan. Surgical exploration, excision of bilateral inferior enlarged parathyroid glands carrying adenoma / hyperplasia was done with correction of PTH, Calcium and phosphate levels. In one patient intra-op PTH remained high (above 800pg), so right superior parathyroid gland was also excised.

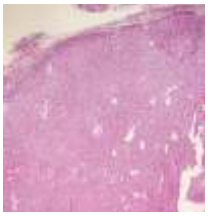
After complete recovery from parathyroidectomy and healing of neck wound (about 3-4 weeks later) patients were taken up for kidney transplant surgery. All the patient had a smooth recovery from both the surgeries.
In one patient, simultaneous Parathyroidectomy was done along with renal transplant, mainly for logistic and financial constraints. He also recovered well - serum PTH and calcium levels were monitored intra-op and post-op with intravenous calcium supplement. Except for additional two hours operative time, no added complication observed in that particular patient. In fact, one general anaesthesia, second operation, hospitalisation, medications could be avoided and overall costs were reduced by 30%.



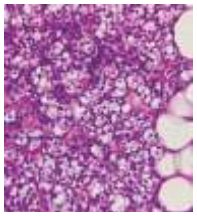
Intra operative pictures and frozen section specimen



Normal Parathyroid



Parathyroid Adenoma



Parathyroid Hyperplasia

DISCUSSION

Chronic Kidney Disease (CKD) affects 10-14% of the population. Renal hyperparathyroidism (rHPT) is a common complication of CKD characterized by derangements in the homeostasis of calcium, phosphorus, and vitamin D – seen in up to 30% ESRD patients. rHPT is associated with increased cardiovascular morbidity and mortality and economic burden.

Normal Calcium and Phosphorus Homeostasis

PTH is the most important regulator of calcium metabolism through 3 mechanisms:

1. Stimulate osteoclast formation and bone resorption, increasing serum phosphate level.
2. Activates 1-α-hydroxylase in the kidney that converts 25-hydroxy (25-OH) D3 to1,25 di-hydroxy D3 (activated vitamin D3) leading to increased absorption of calcium and phosphorus in the gut.
3. PTH increases reabsorption of calcium and decreases reabsorption of phosphorus in the kidney.

Pathogenesis Renal Hyperparathyroidism:

The pathogenesis of rHPT is complex and incompletely understood. Increased PTH levels typically seen in CKD patients when glomerular filtration rate (GFR) drops below 60 mL/min/1.73 m^2. It serves to increase renal phosphorus excretion. Serum, phosphorus and calcium are maintained till GFR drops below 40ml/min. As the GFR declines further, increased serum phosphorus binds to calcium as CaHPO4, resulting hypocalcaemia indirectly leads to a further rise in PTH production. Reduced activity of 1-α-hydroxylase in CKD, decreases 1,25- OH vitamin D3 production, lack of 1,25-OH D3 prevents calcium absorption in GIT and also directly stimulates the parathyroid glands.

Primary Hyperparathyroidism occurs due to over production of PTH by autonomous parathyroid hyperplasia or adenoma or tumour.
rHPT is classically divided into 2 types on the basis of serum calcium level.

Secondary Hyperparathyroidism (2° HPT) –

- PTH elevated in response to hypocalcaemia induced by phosphate retention and reduced calcitriol synthesis as a consequence of renal dysfunction.
- All 4 parathyroid glands enlarge, become hyperplastic as compensatory mechanism.
- Commonly resolves with normalization of calcium and phosphorus homeostasis (Renal Transplant).

Tertiary Hyperparathyroidism (3° HPT):

- With longstanding 2°HPT, autonomous adenoma develops, secrets PTH irrespective of high serum calcium level, hypercalcemia seen in most of the patients.
- Observed in up to 30% of patients with ESRD, who then undergo renal transplant.
- Classically thought to have come from parathyroid hyperplasia, but some studies have suggested that up to 20% of patients may have single or double adenomas.

CONCLUDING MESSAGE:

Improved medical management with Vitamin D analogues, Phosphate binders and calcimimetic drugs has been effective for treatment of rHPT patients.

rHPT patients, refractory to medical therapy, usually harbour adenoma or hyperplasia, although Sestamibi scan may not reveal increased uptake of tracer. Excision of enlarged parathyroid glands is curative in such patients and also avoids future risk of malignant transformation. In selected patients, who are otherwise low risk for surgery, combination of parathyroidectomy simultaneously with renal transplant would be logistically and financially beneficial.

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INTERESTING AND RARE GYNAECOLOGICAL PATHOLOGY CASES

GOITER OF THE OVARY

CR 2

A 56-year old lady referred to our hospital with a history of abdominal pain and swelling and clinical diagnosis of left ovarian mass - Meigs syndrome. CT scan reported outside: Large well-defined predominantly cystic, multi-lobulated intra-abdominal mass with heterogeneously enhancing solid components, a peripheral rim of calcification, and omental caking; likely arising from left adnexa.

Carcinoma of the left ovary. Size of left adnexal mass 11 x 17 x 15 cm. Periumbilical anterior abdominal wall soft tissue mass likely metastatic deposits. Multiple peritoneal metastases and massive ascites (paracentesis 3 litres). Serum CA125 levels – 626 U/mL. Ascitic fluid cytology - Negative for malignancy. FNAC periumbilical mass - Negative for malignancy. Left ovarian solid cortical area laparoscopic biopsy - Benign sex cord-stromal tumour s/o Ovarian Fibroma. Negative for malignancy. Total abdominal hysterectomy with bilateral salpingo-oophorectomy done.

Gross examination showed a left ovarian mass measuring 21 x 18 x 12 cm with an intact capsule. Cut section showed predominantly multiloculated cystic tumour containing brown to greenish gelatinous fluid. The solid area is approximately 10% and is soft greyish brown. No hemorrhage or necrosis was seen. Microscopic examination showed intact ovarian capsule and many colloid-filled thyroid follicles of varying sizes lined by benign thyroid follicular cells. Focal solid, adenomatoid, microfollicular pattern noted. Cholesterol clefts, fibrosis, cystic change, and hemorrhage were seen.

Right ovary, uterus with the cervix and bilateral fallopian tubes were unremarkable on gross and microscopy. No histologic features of (papillary/follicular carcinoma of thyroid) malignancy seen.

Final diagnosis: **Benign Struma Ovarii of left ovary**

Struma ovarii is a rare histological diagnosis and the most common type of monodermal teratoma of the ovary in which thyroid tissue constitutes more than 50% of the component. It comprises 1% of all ovarian tumours and 3% of all ovarian teratomas. Usually, it presents in the fifth decade as an asymptomatic, incidental finding or pelvic mass with abdominal pain. It can mimic ovarian malignancy clinico-radiologically as complex ovarian mass with ascites (Pseudo Meigs syndrome) and elevated CA125 levels. Management of struma ovarii is the surgical removal of ovarian cyst/tumour. Confirmatory diagnosis is by histopathology. Knowledge of this entity preoperatively by clinico-radiology findings may avoid extensive surgery.

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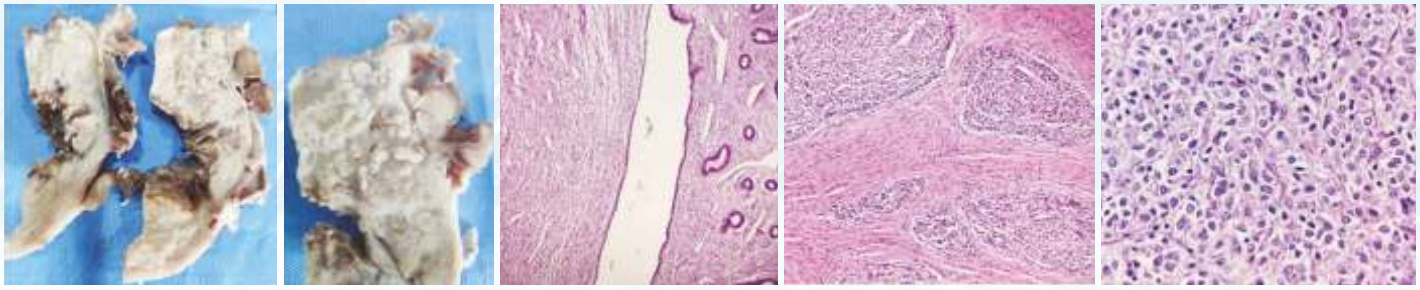
ENDOLYMPHATIC STROMAL MYOSIS

CR 3

31-year-old female RVD patient operated outside for uterine fibroids. No details were available. Now intra-operative adhesions are seen with a left tubo-ovarian mass and an enlarged uterus. Sub-total abdominal hysterectomy with left salpingo-oophorectomy performed. Gross examination showed uterus measures 12 x 13 x 10 cm. The external surface is irregular but intact. Cut section shows dilated endometrial cavity lined by irregular shaggy brownish soft necrotic material with a focal polypoid soft lesion. Myometrium shows irregular firm lesions throughout giving a worm-like appearance. The lower uterine segment was irregular, soft & necrotic and showed suture marks. Left tubo-ovarian mass was attached with left parametrium and showed a similar nodular soft grey-brown appearance. The fallopian tube was 5 cm long and the ovary was replaced by a tumour.

Microscopy showed low-grade polypoid spindle to epithelioid tumour cells arranged in sheets and seen arising from the endometrial stroma and infiltrating myometrium as irregular tongues. Mitotic activity was 4 to 6 per 10 HPF. Arborising vascular pattern, focal necrosis and hyalinisation were noted. Myometrial invasion is seen in more than 50% of wall thickness. Lymphovascular tumour emboli were present. Tumour cells were immunopositive for Vimentin, CD10, ER (Diffuse moderate positivity) with Ki67 proliferation index of 15 %. Tumour cells were immune-negative for Pan CK, SMA, Desmin, Calponin, and Cyclin D (Few, ← 50% cells are positive). The left parametrium and the serosal surface of the left ovary and fallopian tube are involved by the tumour. (pT2a - FIGO Stage IIA). The greatest dimension of the tumour was 10 cm. No lymph nodes or ascetic fluid were examined.



Final diagnosis: **Endometrial Stromal Sarcoma, Low Grade (ESS-LG)**

Endometrial stromal tumours are divided into four types: 1. Endometrial Stromal Nodule, 2. ESS-Low grade, 3. ESS-High grade and 4. Undifferentiated Uterine Sarcoma. They comprise 6 – 20% of all uterine sarcomas and ← 1% of all the uterus primary malignancies. Low-grade endometrial stromal sarcoma is the most common sub-type. The annual incidence of ESS is 1–2 per million women. Surgical excision, adjuvant hormonal therapy and radiotherapy are the main line of management. A proper pre-operative diagnosis is difficult and in most cases, the diagnosis is confirmed after hysterectomy for a presumed benign disease. Endometrial sampling, ultrasound and magnetic resonance imaging can provide diagnostic clues. The tumour stage is the most important prognostic factor. For ESS-Low grade: 5-year disease-specific survival is 90% for stages I and II and 50% for stages III and IV. Immunohistochemistry is essential for theranostic purposes in endometrial stromal sarcomas.

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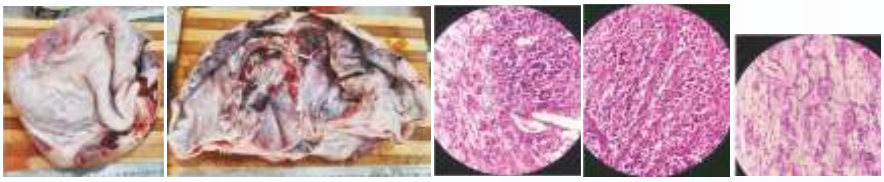
AN OVARIAN TUMOUR MIMICKING PREGNANCY

CR 4

A 28-year-old female presented in labour ward with a history of 9-month amenorrhea with lower abdominal pains, attending a regular clinic in a peripheral hospital. On examination, fetal parts were not palpable. Ultrasound abdomen-pelvis has done suggestive of a large left ovarian solid cystic tumour with torsion - Serous cystadenoma of 35 x 30 x 28 cm size. Routine tumour markers (CA 125, AFP, beta HCG) - all non-reactive. Exploratory laparotomy was done. Intra-operative 6.5 litre fluid drained followed by removal of the left ovary with a tumour weighing around 3 kgs. The post-operative patient resumed normal menses.

Gross examination showed 23 x 21 x 9 cm already cut opened loculated smooth-walled cyst with an intact capsule. A few 2.5 cm greyish tan solid nodules were also seen. Microscopy showed cystic sex cord-stromal tumour comprised of nests and cords of Sertoli cells admixed with clusters of Leydig cells in oedematous fibromyxoid stroma. Focal areas of torsion were noted.



Final diagnosis: **Sertoli-Leydig cell tumour of ovary (SLCT) - Intermediate differentiation (Grade 2).**

SCLT is a rare ovarian tumour composed of sex cord (Sertoli cell) and stromal (Leydig cell) elements. It accounts for less than 0.5% of all ovarian neoplasm and is seen commonly in young patients with a mean age of 25 years. Conservative fertility-sparing surgery (Unilateral salpingo-oophorectomy) and the staging procedure are performed in young patients with Stage I disease. Behaviour correlates with tumour grade & histologic sub-type.

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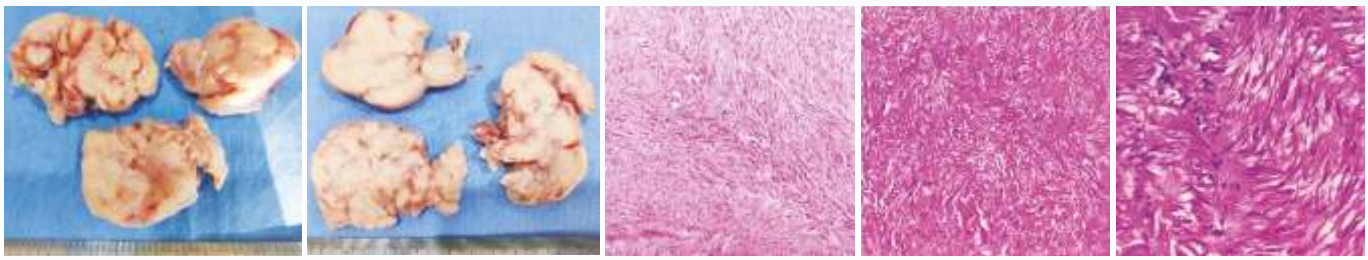
FIBROID OF VULVA MASQUERADING AS BARTHOLIN GLAND ABSCESS

CR 5

25-year-old female presented as a Bartholin Gland Abscess. It was initially leaking blood-stained pus. Intra-operative findings were noted to be a mass and not an abscess. Lipomatous masses extracted from 3 pouches in the right labia minora. Resection of vulvar masses performed. Gross examination showed three circumscribed masses measuring 7 x 4 x 3 cm, 7 X 5 X 3 cm & 7 x 4 x 4 cm. The cut section shows a greyish white, whorled, firm appearance. No necrosis or hemorrhage was seen. Microscopy showed a circumscribed tumour comprised of fascicles of the spindle to epithelioid cells having moderate eosinophilic cytoplasm and spindle to avoid bland nuclei. Stroma shows hyalinization, focal edema, and scattered few mast cells. No mitotic figures were seen. No nuclear atypia, mitosis, necrosis, or infiltrative margins noted. No evidence of malignancy.



Final diagnosis: **Benign Spindle Cell Tumour consistent with Leiomyoma of Vulva.**

Leiomyoma of the vulva is a very rare condition and is usually misinterpreted as a Bartholin cyst. It should be kept as a differential diagnosis when a lady of reproductive age group presents with unilateral swelling in the vulvar region which is firm in consistency. The differential diagnoses of vulvar swelling other than Bartholin cyst are fibroma, lipoma, lymphangiomas, soft tissue sarcoma and neurogenic tumours. So, when a firm vulvar swelling is found, leiomyoma should be kept as one of the differential diagnoses and biopsy must be done to exclude leiomyosarcoma.

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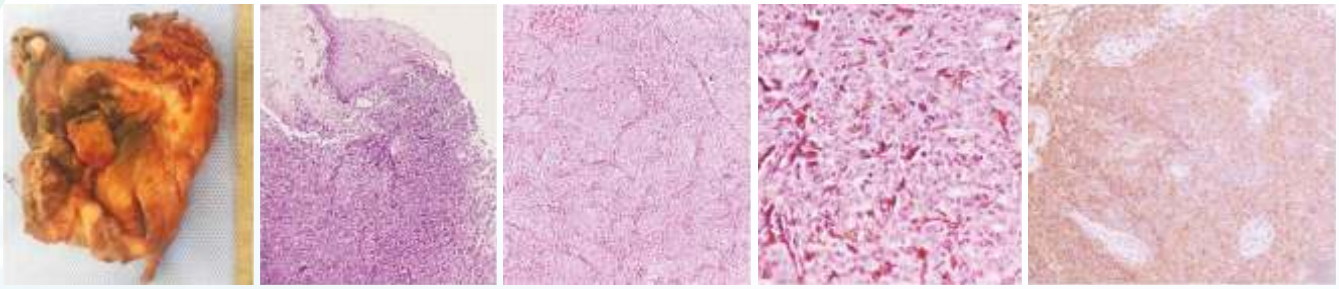
VAGINAL DARK TUMOUR

CR 6

A 53-year-old presented with vaginal bleeding. On examination, a blackish mass was noted and an excision biopsy was done suggestive of melanoma. MRI pelvis showed urethral invasion. Lymph nodes were not involved. Hence wide local excision with urethral excision with reconstruction surgery was done. Vaginal walls were constructed with skin grafts. Post-operative urethral catheter kept for 14 days. After catheter removal, urethral continence was maintained. Gross examination showed fragmented dark brown soft tissue bits aggregating to 4 x 2 x 1 cm. Microscopy showed solid sheets and nodular patterns of malignant melanocytes with surface mucosal ulceration covered with fibrinous exudate. These tumour cells were predominantly epithelioid to the spindle to ovoid-shaped having round to ovoid nuclei with open chromatin, prominent nucleoli and brisk mitosis. (Mitotic activity: 2 to 5 per HPF). Cytoplasm show clumps of dark brown melanin pigment. Tumour cells were immunopositive for Vimentin, Melan-A, HMB45. BRAF mutational analysis was negative.



Final diagnosis: **Nodular Malignant Melanoma - Vaginal mass biopsy.**

One month later a wide local excision of anterior vaginal wall melanoma was performed and the specimen measured 8.5 x 10 x 2 cm. An ulcerated endophytic blackish residual tumour mass measuring 1.5 x 1.5 x 1.5 cm was seen. Cut section showed blackish soft to a firm tumour in the dermis. The depth of invasion was 1 cm. Microscopy showed **Residual Invasive Nodular Malignant Melanoma of Anterior Vaginal Wall.**

Maximum Tumour (Breslow) Thickness: 1 cm. (pT4b). Anatomic (Clark) Level: IV - Melanoma invades reticular dermis. Margins were free of tumour. Primary malignant melanoma of the vagina is a rare gynaecological cancer that affects predominantly post-menopausal women above the age of 60. Malignant melanoma accounts for ← 10% of all female genital tract melanomas, 2.4–2.8% of all vaginal malignancies, and 0.3–0.8% of all malignant melanomas. While patients are often symptomatic with abnormal vaginal bleeding, discharge palpable mass and incidental discoveries are not uncommon. For staging AJCC-TNM and FIGO systems are used. So far, only lymph node involvement and tumour size have been found to correlate with the prognosis of primary vaginal melanoma. However, even with the best clinical picture and the best-known treatment modality (surgery), the expected outcomes are poor. Attention should be given to suspicious pigmented lesions in routine gynaecological examinations.

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EPIDERMOID CARCINOMA ARISING FROM MONSTER TUMOUR OF OVARY

CR 7

A 27-year-old female presented with bilateral ovarian tumours. Intraoperative findings - No pelvic lymphadenopathy. Pelvis mass-Left side strongly adherent to the abdominal wall - shelled off with peritoneal layer. Uterus - normal. Also right ovary cystic mass. Both ovarian tumour masses have an intact capsule. Bilateral ovarian cystectomy and omentectomy were performed.

Gross examination: Left ovarian mass measured 18 x 15 x11 cm. External surface show intact capsule. Cut sections show solid cystic tumour mass. Solid area measure 10 x 7 x 5 cm. It is necrotic, greyish-white, soft to firm in consistency. Cystic mass filled with pultaceous material admixed with hair shafts.

Right ovarian mass measures 20 x 13 x 8 cm. External surface capsule is intact and smooth. The cut section shows a cystic tumour filled with pultaceous material admixed with the hair shaft. No sold areas are seen. Bilateral fallopian tubes were normal. Omentum - 11 x 9 x 4 cm. No tumour deposits were seen.

Microscopy: Sections from the solid part of the left ovarian tumour show histological features of Conventional Squamous Cell Carcinoma with areas of necrosis. Histologic grade is moderate to poorly differentiated. Sections from left cystic tumour areas and right ovarian cystic tumour show histological features of Mature Cystic Teratoma (Dermoid cyst) of the ovary. No immature elements were seen. Bilateral fallopian tubes and Omentum -Negative for metastasis. The capsule is intact and ovarian surface involvement is absent. Lymphovascular and perineural invasion is absent.

Final diagnosis: **Moderate to poorly differentiated conventional squamous cell carcinoma arising in a mature cystic teratoma of the left ovary.**

Mature cystic teratoma of the ovary (MCTO) may occur in 10–20% of women during their lifetime. The biological behavior of MCTO is benign, while 0.17 to 2 % of MCTO may undergo malignant transformation. There are various histological types of malignant transformation such as squamous cell carcinoma (SCC), adenocarcinoma, small cell carcinoma, sarcoma, malignant melanoma and mixed histology. Among them SCC transformation in MCTO is most common, accounting for 80% of all malignant transformation. Fertility-sparing surgery is feasible for young patients with an early stage. In older patients, radical hysterectomy and platinum-based chemotherapy are associated with better survival. It is essential for a gynaecologic oncologist to be aware of this condition and be equipped to deal with it.

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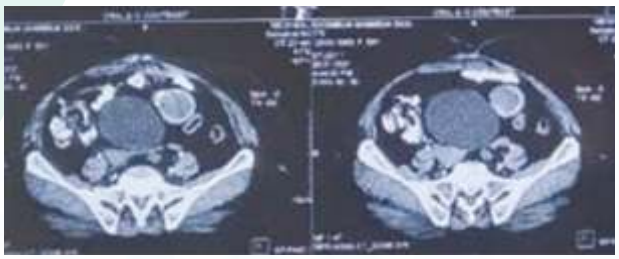
A CASE OF LAPAROSCOPIC REMOVAL OF GOSSYPOBIOMA

CR 8

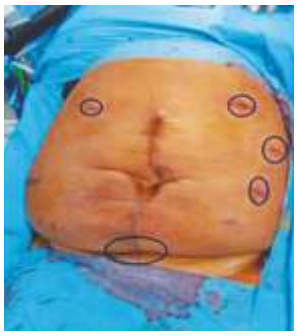
A 50-year-old female, who had undergone an open ventral hernia repair with mesh placement done elsewhere in 2018 had presented with chronic pain in her lower abdomen since previous surgery.



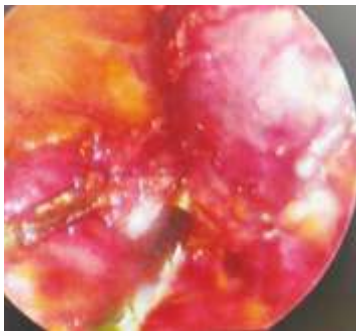
CECT Abdomen revealed an intra-abdominal mass

Patient was obese with previous midline laparotomy with a mesh placed in abdominal wall. This was against feasibility of a laparoscopic access to the mass. However, a site distal to previous surgical scar (Palmer's Point) was selected to create a laparoscopic access to prevent any inadvertent injury.

After safe entry into the abdomen and removing all adhesions, mass was found attached to terminal ileum and dissected out safely from it. Mass was removed through a small pfannensteil incision. Post-operative course was uneventful and was discharged on Day 3.

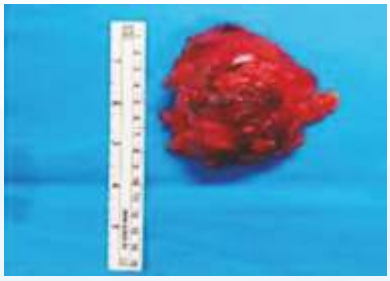


Port placement and specimen extraction incision



Mass being separated from small intestine with energy device.

During histopathological examination, mass appeared to be a gauze piece with surrounding inflammatory reaction. Mop Count Matters!!!



Specimen: Intact and cut in half

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DORSAL KOCHS SPINE – POSTEROLATERAL THORACOTOMY – ANTEROLATERAL FIXATION OF THORACIC SPINE – ON SINGLE LUNG VENTILATION

CR 9

Tuberculosis (TB) is a chronic granulomatous infection caused by acid-fast mycobacterium tuberculosis bacilli. Spinal involvement occurs in less than one percent of the whole TB spectrum. Spinal TB (Pott's disease) accounts for 50% of skeletal TB. Though it mostly affects the thoracolumbar junction, it can occur at any level of the spine. Early diagnosis and treatment are mandatory to avoid neurological complications and spinal deformity.

We report a case of a young male with tuberculosis of D4-D5, who was treated with posterolateral thoracotomy - decompression of the thoracic spine and anterolateral fixation.

A 40-year-old male presented with a month's history of upper back pain radiating to the front of the body and chest area. The pain was associated with an evening rise in temperature and loss of appetite. He was not able to stand or walk for the past 15 days. He had a history of night pains as well. There were no associated comorbidities present like diabetes mellitus and no history of immunosuppressant drug consumption.

On examination, tenderness was present over the D4 and D5 regions as well as over the left paraspinal area. There was gibbus formation over D4-D5 spinous processes.

The neurological examination showed it to be Frankel grade B (complete loss of motor, but the preservation of some sensations.)

Blood investigations were done, which showed an increase in the total WBC count with raised lymphocytes and ESR. Plain radiographs, CT scans, and MRI of the dorso-lumbar-sacral spine were obtained, which showed a lesion involving the D4 and D5 vertebral bodies. There was the destruction of the D4 and D5 bodies with the destruction of the intervertebral disc. A magnetic resonance imaging (MRI) of the dorso-lumbar spine showed a D4-5 vertebral body lesion with an erosion of the disc along with the significant cord and exiting nerve root compression (Figure 1).

All these features confirmed the diagnosis of tuberculosis.

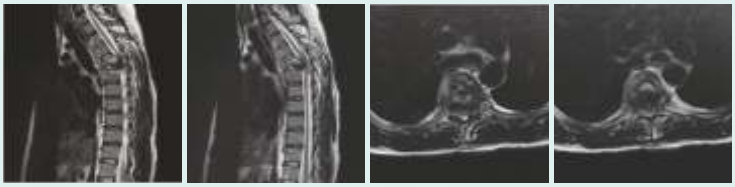

Figure 1 - D4-5 vertebral bodies lesion with an erosion of the disc along with the significant cord and exiting nerve root compression.

The patient was started on anti-tuberculosis treatment and subjected to surgery.

The patient underwent 3rd rib posterolateral thoracotomy and anterolateral fixation of the spine under general anesthesia with single lung ventilation. The patient was taken in lateral position with scapula protracted forwards, 3rd rib thoracotomy performed, anterolateral decompression done, the rib was used as a bone graft, and fixation done with screws and rods. The operative time was 6 hours. The post-operative period was uneventful and the patient was discharged on the 10th day with minimal improvement in lower limb power to grade 1. The patient had come for 1 month follow – up, he can get up from the bed to sit on a wheelchair by himself and ambulate himself. He is pain-free. With continued physiotherapy and anti-tuberculosis treatment hopefully he will make a functional recovery.

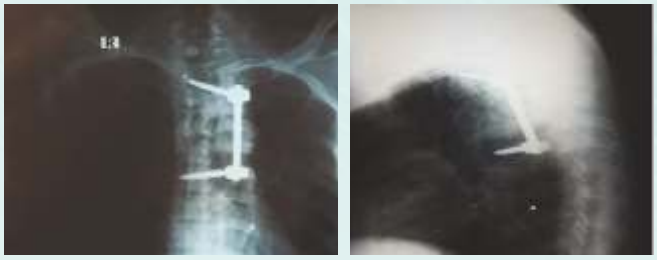

Fig 2. Post-operative X-ray - fixation construct in situ and lateral X-ray shows reduction in kyphosis

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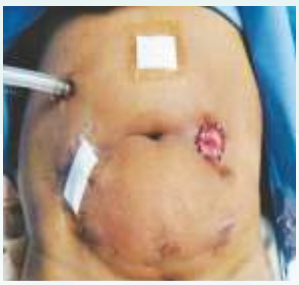
LAPAROSCOPY FOR GASTROINTESTINAL CANCERS

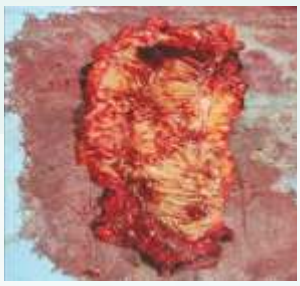
CR 10

CASE NO. 1

A 60-year-old gentleman presented with rectal bleeding for one month. After investigations, he was diagnosed to have rectal cancer amenable to surgery. He was operated for Laparoscopic Abdominoperineal Resection with permanent Colostomy. His post-operative course was uneventful with discharge on Day 3.



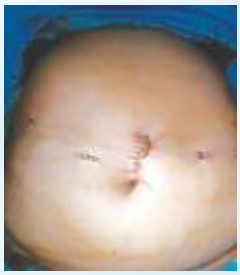
Post-operative picture



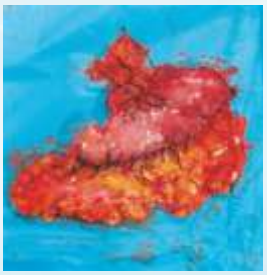
Specimen of rectum

CASE NO. 2

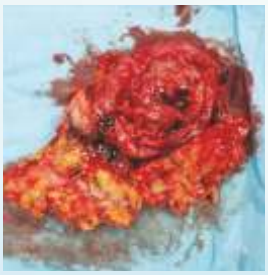
A 49-year-old female came with abdominal discomfort for one month. She underwent OGD, which showed a growth in her stomach, which on biopsy was suggestive of gastric adenocarcinoma. After staging, she was planned for a Distal Gastrectomy with D1 Lymphadenectomy. Her resection was completed laparoscopically with intra-corporeal anastomosis between proximal stomach and small intestine. Her stomach was removed through a small incision of about 4 cm on her abdomen. Patient was discharged on Day 6 without major complications.



Post-operative picture



Extracted specimen of stomach



Cancer in body of stomach

CASE NO. 3

A 38-year-old lady from Rwanda, who was a known case of non-operable esophageal cancer was undergoing chemoradiotherapy. During the course of her radiotherapy, she developed dysphagia to both solids and liquids. Due to obstructive nature of her cancer, stent placement as well as endoscopic feeding tube was not possible and was referred to us for surgical placement of a gastric feeding tube.

Post-operative picture of Gastric Tube

She underwent her radiotherapy session on the morning of surgery and because of laparoscopic placement of the tube into her stomach, she could mobilize within 6 hours of her surgery and she resumed her radiotherapy very next day of surgery, thus not missing a single session of her crucial treatment.

Laparoscopy, commonly known as keyhole surgeries, are the new norm for any abdominal surgery. However, its application has been limited to common conditions like appendicitis, cholecystitis and hernias. These limitations are attributed partly to technical difficulties and to cost issues of energy and stapling devices.

"We have overcome these limitations at Mediheal- Nairobi by providing laparoscopic surgery for operable and non-operable gastrointestinal cancers at low cost with excellent outcomes."

Dr. Dhaval Mistry
Consultant General Surgeon
Mediheal Hospitals, Parklands
Nairobi

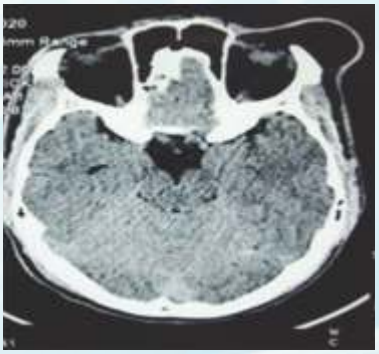
Dr. Kathiresan Prabhu
Consultant General Surgeon
Mediheal Hospitals
Eastleigh, Nairobi

GIANT DERMOID CYST

CR 11

Orbital dermoid presents as an egg-shaped mass under the skin adjacent to the bones of the eye socket. The most common site for dermoid is upper and outer part of eye socket. The less common deep orbital dermoid causes proptosis or displacement of the globe and is sometimes referred to as a "giant dermoid cyst". In some cases dermoid cysts may have extra orbital and infra-orbital components that are connected through defect in bone (Dumbbell dermoid).

Preoperative picture



CT scan

Skin crease incision

Management ranges from observation to surgical excision with indications such as progressive increase in size, ocular symptoms (proptosis), rupture of the cyst and secondary orbital inflammation. Skin crease incision was given in this case for better cosmetic outcome.

Care should be taken to avoid surgical rupture of cyst. If rupture happens then immediate irrigation, installation of antibiotics and steroids to prevent post-operative inflammation should be done. Prognosis for vision and life are excellent.

"At Mediheal Group we provide comprehensive care for all Ophthalmological conditions."

Dr. Nirmal Kumar Narsaria
MBBS, MS (Ophthalmology), LVP Fellow
Consultant Ophthalmologist
Mediheal Group of Hospital, Eldoret

'PRIMARY EMPTY SELLA' ON ROUTINE MRI STUDIES: AN INCIDENTAL FINDING OR OTHERWISE?

CR 12

INTRODUCTION

Primary empty sella (PES) is a condition where the sella turcica (ST) is partially or completely filled with cerebro-spinal fluid (CSF) and the pituitary gland is compressed against the sellar wall with or without enlargement of the ST. Secondary empty sella (SES) can occur following successful trans-sphenoidal pharmacological or radiotherapy treatment or trans-sphenoidal neurosurgery of pituitary tumors; it can lead to spontaneous necrosis (ischemia or hemorrhage) of chiefly adenomas; can result from pituitary infectious processes, pituitary auto-immune disease, or brain trauma. PES is being increasingly recognised in day-to-day radiology practice due to the advent of MRI. PES with a normal-sized ST, detected during MRI study of the brain, is often disregarded as an incidental finding without giving any clinical significance. However, since its initial description, various endocrine, as well as non-endocrine, abnormalities have been described in association with PES.

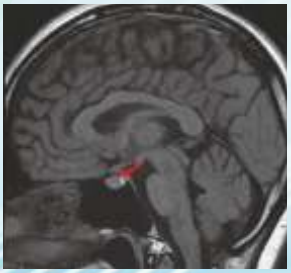


Fig.1 - Normal Pituitary Gland (Arrow)

Fig.2 - Empty Sella (Arrow)

PATHOGENESIS OF PES

PES etiology is not clear. The possible involved pathogenetic mechanisms are not well known. Numerous etiopathogenetic hypotheses have been developed and included.

1. Incomplete formation of the sellar diaphragm.
2. Upper sellar factors (as CSF's pulsatility, stable or intermittent increase in intracranial pressure, obesity and systemic arterial hypertension).
3. Pituitary factors (Pregnancy, lactation and menopause).

DISCUSSION

PES is considered a common finding in imaging studies of the brain with a widely varying reported prevalence of 8–38%. With an ever-increasing number of patients undergoing CT scans and MRI studies of the brain, the reported prevalence of PES is set to rise proportionately. The incidence of PES is four times more common in females with peak age prevalence in the sixth decade.

In addition to being incidental, a well-established association with idiopathic intracranial hypertension is also recognised. Although many patients with primary empty sella, are entirely asymptomatic and endocrinologically normal, increasingly variable hypopituitarism (e.g. growth hormone deficiency) and hyperprolactinemia are being recognised, although whether these conditions are secondary to the empty sella or rather both the empty sella and endocrinopathy represent the sequelae of the previous disease is unclear. Herniations of suprasellar structures into the empty sella may occur, especially when the empty sella is secondary in origin, and most of these cases present with visual disturbances due to herniation of the optic chiasm. Some studies found an association between PES and psychiatric disorders, although individually there was no specific predilection for any particular type of psychiatric disorder. One study also found a strong association of PES with Sensorineural hearing loss (SNHL).

CONCLUSION

PES need not always be an incidental finding on imaging. Certain clinical conditions like hormonal disturbances, psychiatric disorders, raised ICT and SNHL are more often associated with PES as compared to the general population.

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Mediheal Group of Hospitals, Eldoret

SCAPULOTHORACIC ARTHROSCOPY FOR THE OSTEOCHONDROMA OF THE SCAPULA

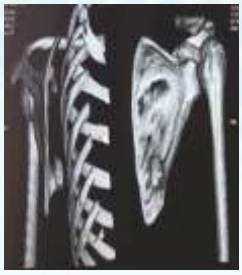
CR 13

Osteochondroma is a type of benign cartilaginous tumour arising from the surface of a bone. accounting for approximately 15% of all bone tumours. These are mostly asymptomatic and usually cease growing upon skeletal maturity.

PRESENTATION OF THE CASE

A 32-year-old lady was referred to our centre, in November 2020, with a history of left shoulder pain that started 4-6 months prior to presentation. The pain was gradual in onset, diffused around the scapular region. It occasionally radiated to the left upper limb and presented with a crepitus or sensation of rubbing against the chest wall leading to pain with joint movement.
On examination there was a subtle winging of the medial border of the scapula. There was associated snapping of the scapula movement with scapulothoracic crepitus.
On radiological examination it revealed a well-defined benign lesion identified as large exostosis located on the ventral aspect of lateral border of the left scapula projecting towards the thorax suggestive of the osteochondroma.

X-ray showing exostosis arising from the ventral aspect and lateral border of the left scapula.



CT showing large bony tumour projecting towards the chest wall.

MRI done to rule out metastasis, sections showing osteochondroma with cartilaginous cap with bursa.

Reference: Ruland LJ 3rd, Ruland CM, Matthews LS. Scapulothoracic anatomy of the arthroscopist. Arthroscopy.1995; 11(1):52-6

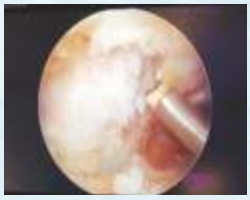
ARTHROSCOPIC TECHNIQUE

Patient was placed in a prone position keeping the left arm in extension and full internal rotation (chicken wing position) to increase the scapulothoracic space.

Chicken wing positioning with skin marking showing the arthroscopic portals with spinal needle (for insufflation).

Positioning of the surgeon (KJ), 1st and 2nd assistant with prone positioning of the patient.

First or the viewing portal was marked inferiorly approx. 4-5 cm from medial border of the scapula and second working portal was marked under vision 4 cm superior to first portal. In this case the intra-operative decision of placing a third portal was done. The third working portal was made under vision on the lateral aspect of the inferior scapular angle. The tumour was then excised partially by arthroscopic burr and delivered out of the third portal using a small sized osteotome.



Removal of the bursa around the tumour using radiofrequency ablator.

Gross specimen for histopathological examination

Post-operative Rehabilitation:
The patient was given arm-sling for a week and then a range of exercises were started. After the operation there was no joint crepitus and neurological deficit. The patient had a significant improvement on VAS and DASH score with good cosmetic scar.

On the basis of the review of the literature, snapping scapula syndrome secondary to osteochondroma of the scapula was managed by the scapulothoracic arthroscopy, a novel technique.

"At Mediheal Group of Hospitals we are well equipped for advanced arthroscopic procedures".

Dr. Kartikeya Pramod Joshi
Consultant Orthopedics
Mediheal Group, Nairobi

DENTAL IMPLANTS PROCEDURE, TYPES, PROBLEMS AND COST

CR 14

WHAT ARE DENTAL IMPLANTS?

Dental implants as we know them today were invented in 1952 by a Swedish orthopaedic surgeon named Per-Ingvar Brånemark. Today, they are considered the standard of care for prosthetic replacement of missing teeth in dentistry. The process of fusion between the dental implant and jawbone is called "Osseo integration." Most dental implants are made of titanium, which allows them to integrate with bone without being recognised as a foreign object in our body. Over time, technology and science have progressed to improve the outcome of dental implant placement. Today, the success rate for dental implants is close to 98%.

WHY WOULD YOU NEED A DENTAL IMPLANT?

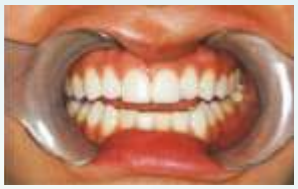
Dental implants can be used to replace a single tooth, several teeth or all the teeth. The goal of teeth replacement in dentistry is to restore function as well as aesthetics. When it comes to tooth replacement, generally, there are three options.

1. Removable dental appliance (complete or partial denture).
2. Fixed dental bridge (cemented).
3. Dental implant.

Dental Implants for Multiple Missing Teeth - Before

Dental Implants for Multiple Missing Teeth - After

Dental Implants for Single Missing Tooth - Before

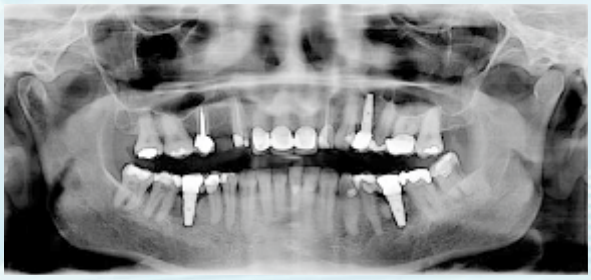


Dental Implants for Single Missing Tooth - After

In dental implants the missing teeth can be replaced without affecting or altering the adjacent teeth. Furthermore, because dental implants integrate into the bone structure, they are very stable and can have the look and feel of one's own natural teeth.

WHAT HAPPENS BEFORE, DURING, AND AFTER DENTAL IMPLANT SURGERY?

The first stage of oral surgery often involves a tooth or teeth extraction. In some instances, when enough bone is present, the damaged tooth can be extracted followed by the implant placement procedure at the same appointment. This procedure is called "immediate implant" placement.



"At Mediheal group we offer world class implants and expertise at affordable price"

HOW MUCH DOES A DENTAL IMPLANT COST?

The cost of a single dental implant can vary depending on the region and who is performing the procedure. A conservative cost estimate for a single dental implant is KSH 150,000 to KSH 200,000. This cost includes the surgery for placement of an implant, all the components and the implant crown.

Dental implants have become a favoured option for tooth replacement because they offer a conservative approach and provide predictable results with success rates close to 98%.

Dr. Dipankar Hazra
Consultant Dental Surgeon
Mediheal Hospitals, Eldoret

PATIENT'S MISERY, DOCTOR'S MYSTERY...

CR 15

CLINICAL PRESENTATION

A 15 years old boy was referred to our facility from a primary care center in the periphery after being treated for 7 days for PUD with complaints of pain abdomen, bloating, fever, and recurrent vomiting.
On examination- He was sick-looking, dehydrated, febrile, and in distress.
Abdominal examination showed the fullness of lower quadrants of the abdomen with guarding, tenderness, and sluggish bowel sounds.

INVESTIGATIONS:

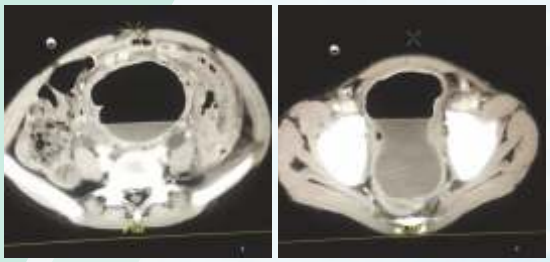


Figure 1: CT Abdomen showing uniloculated cavity with air-fluid level extending from pelvis to abdominal cavity suggestive of an intraperitoneal abscess.

INTRA-OP FINDINGS:

Laparotomy shows a gangrenous, pedunculated structure arising from the mesentery of the terminal ileum with necrosis of adjoining bowel loops. Resection & anastomosis done. The patient had an uneventful post-op recovery and discharged in good health on POD9.

A clinical diagnosis of? An infected Vitello-intestinal cyst was made.

Fig 2: Intra-op findings showing a gangrenous pouch attached to mesentery with necrosis of adjoining small bowel.

HISTOPATHOLOGY

GROSS: Received a segment of small intestines measuring 40cm in length.

External surface: Single, gangrenous, grey-white to green cyst measuring 8x5x2.5cm arising from the mesentery. The serosal surface of the intestines is grey-white, reddish, and oedematous.

Cut section: Cyst having a honeycomb appearance consist of multiple seeds? papaya? chilly and grey-brown foul-smelling materials? fecal matter. The mucosa of the intestines is unremarkable.

Microscopy: Sections studied from cyst show denuded lining with impacted fecal matters. Wall composed of fibro collagenous tissue, dense neutrophilic infiltrates, necrosis, and congested blood vessels. Sections studied from cyst contents show cut sections of vegetation materials and fecal matters.
Section studied from small intestines shows mucosal lining showing edema. Serosa is congested and oedematous.

Fig 3: Gross specimen of cyst/pouch containing papaya and chilly seed. Next picture show cut section of the seed (vegetation material).

DISCUSSION:

The commonest lesion in that anatomical location of small bowel and age group of this patient is a Meckel's Diverticulum. However, the above images/Intra op pictures suggest otherwise, as the lesion is arising from the mesentery and not communicating with the bowel lumen to be called a diverticulum.

The presence of vegetative material(papaya seeds) in the lumen of the cystic lesion makes it a doctor's mystery as there was no luminal communication established.

Microscopically, the cyst wall is not lined by intestinal lining hence Meckel's Diverticulum is ruled out. The pouch is lined with fibrocolleganous tissue and filled with fecal matters and vegetative materials. Can it be a small perforation in which the contents get collected in the mesentery and walled by the inflammatory reaction? But why papaya seed only?

Abdomen was, is & shall always remain a Pandora's Box.

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CAROTID BODY TUMOR/PARAGANGLIOMA

CR 16

INTRODUCTION

Paraganglioma or know as carotid body tumors rare neoplasms, although they represent about 65% of head and neck paragangliomas. These tumors develop within the adventitia of the medial aspect of the carotid bifurcation, also known as chemodectomas, are highly vascular glomus tumor that arises from the paraganglion cells of the carotid body. It is located at the carotid bifurcation with characteristic splaying of the ICA and ECA.

The carotid body, which originates in the neural crest, is important in the body's acute adaptation to fluctuating concentrations of oxygen, carbon dioxide, and pH. The carotid body protects the organs from hypoxic damage by releasing neurotransmitters that increase the ventilatory rate when stimulated.

EPIDEMIOLOGY

Typically, carotid body tumors are diagnosed in the 4th to 5th decades, and have a female predilection like the other paragangliomas of the head and neck. They are the most common type of paraganglioma of the head and neck (account for 60-70%). In approximately 10% of cases, they are bilateral.

A small number are familial (7-10%), and in such cases, they are frequently multicentric (35-50%) 1,3. When familial, they are usually autosomal dominant in inheritance.

CLINICAL PRESENTATION

49 years old female came with right lateral neck swelling for 9 months. The swelling was painless, slow-growing with no associated complaints. O/E: Firm, non-tender swelling, corresponding to Right Level II Lymph nodes extending to below right mandibular angle.

INTRA-OP FINDINGS

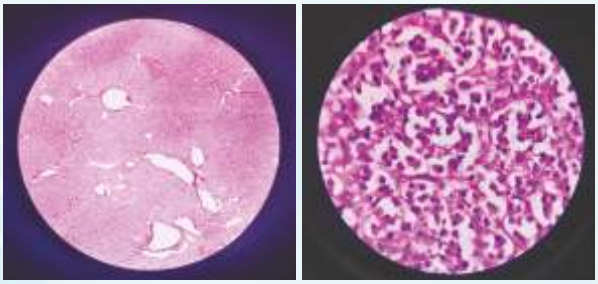
Large nodular, vascular swelling? arising from submandibular gland.

GROSS

Fig 1: Gross appearance showing well-encapsulated lesion and cut section show grey- white to brown with areas of hemorrhage.

MICROSCOPY

Sections studied show well-circumscribed mass (pseudocapsule) composed of round to oval cells arrange in nesting (Zellballen) and trabeculae pattern separated by anastomosing vascular channels. Individual cells have abundant granular eosinophilic cytoplasm with round bland nuclei having salt and pepper chromatin. Mitosis 1-2/HPF.



DISCUSSION

In this case, the age and sex of the patient are in accordance with the prevalence seen with paraganglioma. Since it is a very rare entity, the clinical diagnosis was difficult to make. The incidence of carotid body tumors is less than 1 in 30000 and it represents more than half of neck paragangliomas, yet still a very rare cause of neck lumps. Intraoperative finding pointed towards vascular tumor which gave us the clue. The most important differential diagnosis of paraganglioma includes aneurysm or pseudoaneurysm of the carotid artery, hematoma, glomus vagale tumor, and vagal schwannoma.

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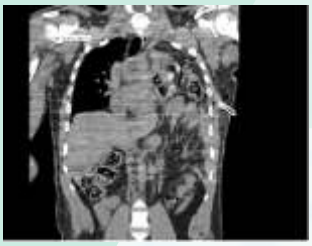
TRAUMATIC RUPTURE OF DIAPHRAM

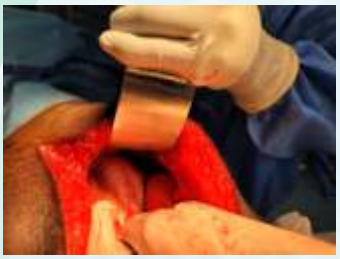
CR 17

27 year old male came with presenting complaints of shortness of breath after a road traffic accident. CT scan was done which showed diaphragmatic hernia with stomach and colon ascending into the left chest with left lung collapse



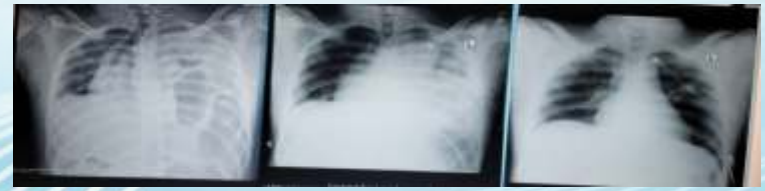
CT showing herniation of abdominal contents with left lung collapse and mediastinal shift to right side.

Exploratory Laparotomy was done. 8x2 cm defect noted in the diaphragm over the left side with stomach colon and small bowel herniating in to the left side of chest. Diaphragmatic repair done, ICD in-situ left pleural cavity.



Intra-op pic showing herniation of stomach and colon through left diaphragm

Intra-operative C arm denoting expansion of lung tissue



Immediate post-op X ray was done which showed expansion of left lung

Traumatic diaphragmatic injuries are rare, but potentially life-threatening due to herniation of abdominal organs into the pleural cavities. They can be easily overlooked on initial diagnostics and a high index of suspicion is required. A team of dedicated specialists comprising of Radiologists, General surgeons and Intensivists for best surgical outcomes to all trauma patients are available at Mediheal group of Hospitals.

Dr. Chandra Mohan V.
MBBS, M.S General Surgery, F.MAS
Consultant Liver transplant GI and General surgeon
Eldoret, Kenya.

mediheal group of hospitals

INTERNATIONAL DESK

Transforming Healthcare in Africa

After a long stay in the hospital in Congo, and frequent visits to other hospitals in Rwanda and Burundi, my daughter (WANI MATOTO CLARICE) had suffered enough and no doctor or hospital could diagnose her sickness. We were sent to Kenya at Mediheal Group of Hospitals. We were received at the airport by an ambulance that took us straight to the hospital, where the treatment started immediately. I was amazed with the warm welcome we got from the nurses, nutritionists and most importantly the doctors. Thanks to Dr. Parag Patil and Dr. G.B Mahapatra for their continuous support. If my daughter is alive today, it is because of them. The diagnosis was accurate and it was found that my daughter was suffering from Lupus (SLE), which was treated immediately. I am always in touch with the doctors and they always respond to my queries regarding the health of my daughter. May God bless Mediheal Group of Hospitals.

Stella Ndanda
Democratic Republic of Congo

I am a healthcare worker and I have seen my daughter (Cizungu Kyria Ndayi) go through the worst moment of her life. We had visited most hospitals in our country and used all manner of medications with no success. Her health was deteriorating day by day. We were then referred to Mediheal Group of Hospitals for further investigations and proper management. I would really like to commend the services I received in this facility. From the airport, we were received by a team from the hospital and sent directly to the facility where the Doctors were waiting for us. For the first time, I experienced world-class treatment and a proper diagnosis; this was the most fulfilling news we received as family after spending so much time and money wondering what our daughter was suffering from. I will always be grateful to Dr Parag Patil for his commitment in ensuring that my daughter regains back her life. She is now back to school and we are always able to contact Dr Patil for an online consultation in case of anything. Mediheal has developed a platform that enables us to continue our follow-up online even during COVID time. Always grateful to Mediheal, an impeccable hospital with hospitality and care with very modern equipment. The services offered meet the expectations of the patients.

Nicole Mbayo
Democratic Republic of Congo

My Journey with MEDIHEAL

Patient Prevents | Doctor Treats | God Heals

mediheal group of hospitals

INTERNATIONAL DESK

Transforming Healthcare in Africa

I was diagnosed with chronic kidney disease early in 2020 while I was working in Dubai, United Arab Emirates. I came back to Uganda to start preparing for the surgery while I was having dialysis and was consulting a local Nephrologist, who is also the president of the Uganda Kidney Foundation. He shared with me and my family about various hospitals including Mediheal Group of Hospitals, where I can do a transplant, the best alternative for my condition. That day after the discussion with him, we made our decision to go to Kenya. We were put in touch with the hospital local representative, who shared with us the specifics of cost, duration of treatment, accommodation and transportation. Soon we were on our way to Kenya and we had a great experience because the hospital arranged transportation for us from the border to the hospital in Eldoret and being my first time in Kenya, it was really an adventure. During our treatment in Kenya the staff at Mediheal were welcoming and professional. I could access doctors at any time of the day. Results of our tests and doctors investigations were quick. I had a successful kidney transplant at Mediheal Group of Hospitals, which is truly by God's Grace and extraordinary doctors, who took all the necessary steps and procedures, worked with so much professionalism and patience to ensure that the surgery was a success. I and my family are extremely grateful to the Mediheal fraternity and am happy I made the right choice to do the surgery in Kenya given all the benefits ranging from affordability, distance from home, post-transplant reviews, check-up with telemedicine services and easy access to medicines.

Brian
Kampala, Uganda

Leaders of the Association of Congolese Students in Kenya (ADECK) visited our facilities. They were represented by President Mr. Agthon Angembe (Centre) and the Vice-President Gedeon Baleke (left), who is the Co-Founder of the Congolese Young Leaders' Foundation with Alexandre Cinamula - Country Manager Francophone Countries and Linda Basema, Mediheal Group of Hospitals. Kenya has the highest number of international students in Central and East-Africa spread across various universities.

My Journey with MEDIHEAL

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ACTIVITY CORNER

Mediheal Group of Hospitals staff joining the whole world in celebrating World Women's Day. This year's theme for the International Women's Day, "Women in leadership: Achieving an equal future in a COVID-19 world", celebrates the tremendous efforts by women and girls around the world in shaping a more equal future and recovery from the COVID-19 pandemic.

Mediheal Group of Hospitals staff joining the world in celebrating the World Kidney Day under the theme "Kidney Health for Everyone Everywhere – Living Well with Kidney Disease". World Kidney Day is a global health awareness campaign focussing on the importance of the kidneys and reducing the frequency and impact of kidney disease and its associated health problems worldwide.

MEDIHEAL IN THE NEWS

Dr. Naveen (Consultant Urologist) on KTN TV.
https://youtu.be/KYymYn6NlSc

Mediheal World Kidney Day programme coverage on KBC.
https://youtu.be/5GRZ6Oppel4

Mediheal World Kidney Day programme coverage on K24.

MEDIHEAL IN THE NEWS

Mediheal World Kidney Day programme coverage on Kameme.
https://youtu.be/FOhdHKBC9jU

Mediheal World Kidney Day programme coverage on KASS TV.
https://youtu.be/PBwgJT2stMk

Women and Reproductive Health - Menstruation.
Interview with Dr. Meenu Singh on Y254 TV.
https://youtu.be/IIVmE8NPyaY

MEDIHEAL IN THE NEWS

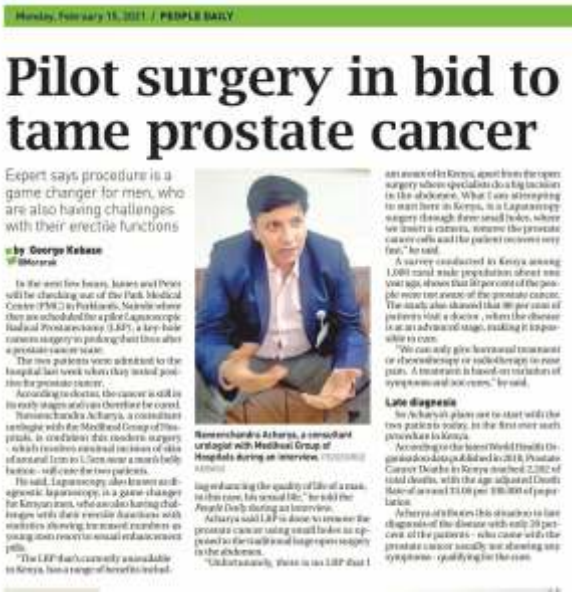
Spike in patients seeking head injury treatment elicits worry

Storm over move to re-introduce nicotine pouches

People Daily (March 1st 2021) - Article: Spike in patients seeking head injury treatment - Dr. Hitin Gadkari, Consultant Neurosurgeon, Mediheal Hospitals

Health education is responsibility of every hospital

People Daily (8th April, 2021) - Article: Health Education is the responsibility of every hospital - Dr. Parag Ashok Patil, Cardiologist, Mediheal Hospitals.



Monday, February 15, 2021 / PEOPLE DAILY

Pilot surgery in bid to tame prostate cancer

Expert says procedure is a game changer for men, who are also having challenges with their erectile functions

by George Kebaso

Naveenchandra Acharya, a consultant urologist with Mediheal Group of Hospitals during an interview.

People Daily (February 15th, 2021): Article on prostrate cancer - Dr. Naveenchandra Acharya, Consultant Urologist, Mediheal Hospitals.

National News

Key surgery casts ray of hope in war on prostate cancer

New dawn for patients with cancer of prostate

WE BELIEVE

National News: Article on prostrate cancer - Dr. Naveenchandra Acharya, Consultant Urologist, Mediheal Hospitals.

MEDICAL QUIZ

1. What is Crapulent?
A. Constipation
B. Excessive Ego
C. Excessive Drinking
D. Loss of Appetite

2. What is Phlebitis?
A. Kidney Stones
B. Vein Inflammation
C. Enlarged Heart
D. Abdominal Distention

3. What is Cicatrix?
A. Scar
B. Bruised Bone
C. Bloody Nose
D. In-grown Toenail

4. What is Exophthalmos?
A. Swollen Knee
B. Enlarged Spleen
C. Bulging Eyeball
D. Discoloured Skin

5. What is Emesis?
A. Coughing
B. Eating
C. Breathing
D. Vomiting

6. What is Diaphoresis?
A. Walking
B. Flatulence
C. Sneezing
D. Sweating

7. What are Borborygmi?
A. Stomach Rumbles
B. Leg Spasms
C. Hiccups
D. Diarrhea

8. What is Pyrosis?
A. Fainting
B. Heartburn
C. Hand Swelling
D. Bone Loss

9. What is Pruritus?
A. Dandruff
B. Fibrous Tumor
C. Itchy Skin
D. Spider Veins

10. What is Helminth?
A. Parasitic Worm
B. Kidney Cyst
C. Muscle Cramping
D. Head Injury

E-mail your answers to medtalk@medihealgroup.com

Answers for the Medical Quiz from MedTalk Vol. 2:
1-A, 2-A, 3-C, 4-A, 5-D, 6-C, 7-D, 8-C, 9-C, 10-A

COMIC TONIC

Why are doctors always calm?
They have a lot of patients.

What do you call a doctor who fixes websites?
A URL-ologist.

Why did Dracula go to the doctor?
He couldn't stop coffin!

Doctor: "What seems to be your trouble?"
Patient: "When I get up I feel dizzy for one hour?"
Doctor: "Try getting up one hour later."

Patient: Doctor, I get heartburn every time I eat birthday cake.

Doctor: Next time, take off the candles.

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