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A Case Report on Horseshoe Kidney in a patient with Hypothyroidism, Cryptogenic Cirrhosis of Liver and Portal Hypertension

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ABSTRACT:
Introduction: Horseshoe kidney is a rare non-fatal congenital abnormality of renal development. These conditions are usually asymptomatic and in various casesit discovered incidentally. The incidence of horseshoe kidney is approximately 1 in 500 in the average population and this anomaly is found in men than in female. Horseshoe kidney means two kidneys joined together and form the U shape like a horseshoe. It is also known as Renal Fusion. The most problem of horseshoe kidneys is nephrolithiasis. There is no cure for horseshoe kidneys, but supportive treatments can treat symptoms.
Patient medical history: The Patient has come with the chief complaints of breathing difficulty, swelling, facial puffiness for 15 days, abdominal distension, repeated episode of vomiting blood (hematemesis), and melena. The Patient had a history of hypothyroidism for two years and cryptogenic cirrhosis of the liver with portal hypertension for one year.
Diagnostic evaluation: Endoscopy procedure done to screen esophageal varices, there are large esophageal varices and severe portal hypertensive gastropathy USG: cirrhosis of liver, mild splenomegaly. Echo: Severe portal hypertension, mild Tricuspid Regurgitation with Right Ventricular Systolic Pressure, Mildly dilated Right Atrium and Right Ventricle.
Therapeutic intervention: Provide beta-blockers, antibiotics, antiemetics, vitamin supplements, biliary agents, and antidiuretic used to treat the client, but the Patient's overall health was deteriorating.
Conclusion: Treatment and care for horseshoe kidney disease on time will help to prevent further life-threatening consequences.

Keywords: Horseshoe kidney, Renal fusion, hypothyroidism, cryptogenic cirrhosis of the liver, portal hypertension

INTRODUCTION:

A "fusion anomaly" is what we term a horseshoe kidney.1 A fusion abnormality occurs when one kidney attaches to the other, as the name implies. This will happen if the normal migratory process of both kidneys is disrupted. A situation where aberrant migration affects only one kidney rather than both, resulting in both kidneys being present on one side of the spinal column, is a bit unusual.[1] A "crossed fused ectopic kidney" is what this is called.[2] The bottom poles of the kidneys fuse in the conventional horseshoe kidney, resulting in a classic horseshoe form.2 The ureters (tubes that drain urine from our kidneys) are still in place and drain each side individually. The "isthmus" refers to the fused section of the kidney.[3] This isthmus may or may not be symmetrically positioned above the spine. We term it an "asymmetric horseshoe kidney" if it lies more to one side than the other.[4] Because functional kidney tissue may or may not make up the isthmus, it's not uncommon to only see the two kidneys connected by a nonfunctional fibrous tissue band.[5]

Patient-specific information:
Patient was brought to a rural hospital with the primary complaint of breathing difficulty, swelling, and facial puffiness for 15 days, abdominal distension, hematemesis, passing black stool, and the Patient was brought to the rural hospital for further treatment.

Medical, family, and psycho-social history: He is not mentally stable, unconscious, and disoriented. He is not oriented to date, time, and place.

Past Relevant intervention with outcomes: The patient has a past medical history of horseshoe kidney with hypothyroidism two years ago and cryptogenic cirrhosis of the liver with portal hypertension for 1 year. After that, he was admitted to the hospital to treat the ailment, but his condition did not improve sufficiently.
Clinical Findings:
The Patients are unaware of the date, time, location, and person. His body build is thin, and he does not maintain hygiene. His BP was 140/90 mmHg. On Systemic examination, there will be Right-sided mild breath noises in the respiratory system and left hepatosplenomegaly.

Diagnostic assessment:
Endoscopy: erythematous spots, large esophageal varices, severe portal hypertensive gastropathy. Endoscopy procedure done to the screening of esophageal varices, there are large esophageal varices and severe portal hypertensive gastropathy USG: cirrhosis of liver, mild splenomegaly. Echo: Severe portal hypertension, mild Tricuspid Regurgitation with Right Ventricular Systolic Pressure, Mildly dilated Right Atrium and Right Ventricle.
Complete Blood Count:
White Blood Cells-2-3 cells/HPF
Total Leukocytes Cunt- 442 cells/cumm
Differential Leukocytes Cunt -Polymorphs-60%, Lymphocytes-40%
Lipid Profile:
total cholesterol- 114
Triglyceride-58
High-Density Level-41
Low-Density Level-70
Very Low Density Lipoprotein-20
Therapeutic intervention:
A case of horseshoe kidney disease and portal hypertension treated with beta-blocker, antibiotic, antiemetic, vitamin supplements, and antidiuretic.
Medication: Syp. Sucralfate for two weeks, Tab. Rifagut, Inj.Emset, Inj. Optineuron, biliary agents, Tab. Udiliv300, Inj, Lasix.

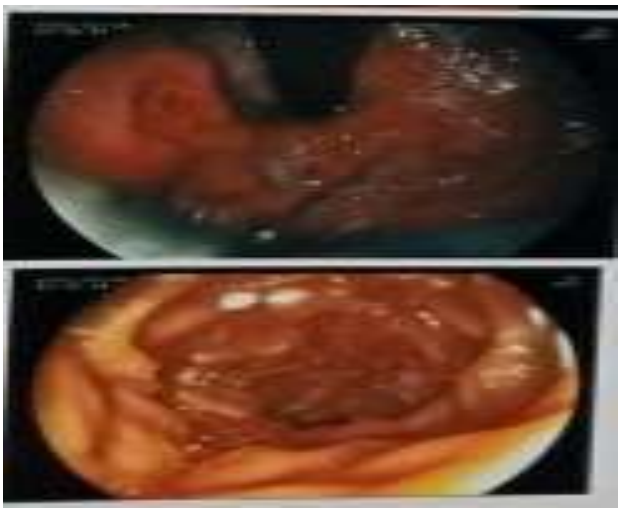

Figure 1: large esophageal varices severe Portal Hypertensive Gastropathy

Discussion:

A male patient, 63-year-old came to a rural tertiary hospital with the primary complaint of breathing difficulty, swelling and facial puffiness for 15 days, abdominal distension, hematemesis, and passing black stool. All required investigations carried out like Echo, Endoscopy, Lipid profile, complete blood count, USG, physical examination, and Patient diagnosed with Horseshoe kidney with hypothyroidism with cryptogenic cirrhosis of the liver with portal hypertension. After that, he was admitted to the hospital to treat the ailment. The Patient got a beta-blocker to help with his symptoms, antibiotic, antiemetic, vitamin supplements, biliary agents, and antidiuretic, but patient condition did not improve sufficiently.

The congenital fusion abnormality of the urinary system is HSK, and it is most frequent.[6] Working parenchymal or fibrous isthmus tissue connects the lower poles of both renal tumors.[7] The upper poles maybe join less often, resulting in an inverted HSK. This aberration is commonly discovered by coincidence in adults during routine intravenous pyelography, sonography, or CT scans, but it can also be noticed in babies as early as the first trimester.[6]

The genesis of HSK is the subject of two theories. During the metanephric stage, the lower poles come into contact with one another, fuse, and form a Horse Shoe Kidney, according to one theory. Kidneys are still positioned in the pelvis. The inferior mesenteric artery (IMA) inhibits ascension as the fused kidneys move to their adult position, which explains why HSK appears lower on sonography. According to the second explanation, a teratogenic event causes nephrogenic cells to migrate abnormally, resulting in a midline isthmus with functional parenchyma tissue.[6]

An HSK is often located inferior mesenteric artery, which hooks with the isthmus to the posterior to the lumbar spine, and is inferior to the aortic bifurcation because of a lack of rib protection. HSK is predisposed to abdominal injuries in this anatomical position. Renal arteries can come from the abdominal aorta, the common iliac arteries, the femoral arteries, or the inferior mesenteric artery, among other places.[8-16] HSKs are often fed by several auxiliary renal arteries and aberrant arteries that reach the kidney directly. According to one study, 63 percent of HSK patients had renal arteries more than three.[17-25]

HSK is usually asymptomatic. However, it can be associated with the central nervous system, vascular and genitourinary problems, skeletal, chromosome.[6] HSK is frequently linked to pathological disorders like ureter stricture and abnormal arterial supply. Stasis induced by calyx orientation and poor drainage is also a typical cause of large staghorn calculi.[10] HSK masses are made up of 20% transitional cell cancer. Wilms tumors, oncocytomas, and angiomyolipomas are all possible diagnoses.[26]

HSK may be found with sonography, which commonly visualizes the connecting isthmus anterior to the spine. It's essential to keep an eye out for a retroperitoneal tumor that might be misconstrued for HSK. Digital subtraction angiography can be used to assess artery supply.[27] During preoperative planning, to evaluate arterial supply to limit the risk of unexpected bleeding CT scan or magnetic resonance imaging (MRI) may be done to assess the arterial supply.[11] CEUS (contrast-enhanced ultrasonography) can be used to assess kidney masses.[28-30]

Horseshoe kidneys are uncommon, and the tumor, including the isthmus parenchyma, is much rarer. There have been roughly 150 recorded occurrences of horseshoe kidneys of renal cell carcinoma worldwide. Nearly half of the

cases reported were Wilms tumors, and renal pelvic tumors account for the other half of the malignancies, with renal cell carcinoma clear cell type accounting for the other half.[13] Only two instances with bilateral malignancies were detected in the published cases, and less than ten cases involving the isthmus were documented.[31-35]

Conclusion:

Horseshoe kidney is a congenital anomaly which may develop numerous complications including loss of renal function. Long term stenting of the ureter should be avoided and definitive therapeutic approach should be the goal. Urologists are mostly faced with with difficult cases that are not responsive to standard operative procedure. It highlights the improvements of the patient's quality of life as well as long term functional protection of the remaining part of the horseshoe kidney.

References:

1. O'Brien J, Buckley O, Doody O, Ward E, Persaud T, Torreggiani W. Imaging of horseshoe kidneys and their complications. Journal of medical imaging and radiation oncology. 2008 Jun;52(3):216-26.
2. Mittal MK, Sureka B, Mittal A, Sinha M, Thukral BB, Mehta V. Congenital anomalies of kidney and ureter. Anat Physiol. 2016 Dec 29;6(190):2161-0940.
3. Decter RM. Renal duplication and fusion anomalies. Pediatric Clinics of North America. 1997 October 1;44(5):1323-41.
4. Eisendrath DN, Phifer FM, Culver HB. Horseshoe kidney. Annals of surgery. 1925 Nov;82(5):735.
5. Dunnick R, Sandler C, Newhouse J. Textbook of uroradiology. Lippincott Williams & Wilkins; 2012 October 16.
6. Natsis K, Piagkou M, Skotsimara A, Protogerou V, Tsitouridis I, Skandalakis P. Horseshoe kidney: a review of anatomy and pathology. Surgical and Radiologic Anatomy. 2014 Aug;36(6):517-26.
7. Türkvatan A, Ölçer T, Cumhur T. Multidetector CT urography of renal fusion anomalies. Diagnostic and Interventional Radiology. 2009 June 1;15(2):127.
8. Thoma S, Hogan A. A Horseshoe Kidney With Solid Mass: A Case Report. Journal of Diagnostic Medical Sonography. 2020 Sep;36(5):492-6.
9. Babu C, Sharma V, Gupta OP. Renal fusion anomalies: a review of surgical anatomy. Anat Physiol. 2015;5(001).
10. Gao X, Fang Z, Lu C, Shen R, Dong H, Sun Y. Management of staghorn stones in special situations. Asian Journal of Urology. 2020 Apr 1;7(2):130-8.
11. Talanki, V.R., Peng, Q., Shamir, S.B., Baete, S.H., Duong, T.Q. and Wake, N., 2021. Three-Dimensional Printed Anatomic Models Derived From Magnetic Resonance Imaging Data: Current State and Image Acquisition Recommendations for Appropriate Clinical Scenarios. Journal of Magnetic Resonance Imaging.
12. Rübenthaler J, Negrao de Figueiredo G, Mueller-Peltzer K, Clevert DA. Evaluation of renal lesions using contrast-enhanced ultrasound (CEUS); a 10-year retrospective European single-center analysis. European Radiology. 2018 Nov;28(11):4542-9.
13. Glodny B, Petersen J, Hofmann KJ, Schenk C, Herwig R, Trieb T, Koppelstaetter C, Steingruber I, Rehder P. Kidney fusion anomalies revisited: clinical and radiological analysis of 209 cases of crossed fused ectopia and horseshoe kidney. BJU international. 2009 Jan;103(2):224-35.
14. Bonnet, S., Hartl, D., Leboulleux, S., Baudin, E., Lumbroso, J.D., Al Ghuzlan, A., Chami, L., Schlumberger, M. and Travagli, J.P., 2009. Prophylactic lymph node dissection for papillary thyroid cancer less than 2 cm: implications for radioiodine treatment. The Journal of Clinical Endocrinology & Metabolism, 94(4), pp.1162-1167.
15. Bhadarge, Gangaram, Ranjit Ambad, NandkishorBankar, and Raunak Kotecha. “Study of Cigarette Smoking on Haematological Parameters and Lipid Profile in Vidharbha Region, India.” Journal of Pharmaceutical Research International, July 10, 2021, 213–17. https://doi.org/10.9734/jpri/2021/v33i36A31943.
16. Bhadarge, Gangaram, NandkishorBankar, and Sudhir Singh. “Study on Serum Zinc Levels and Vitamin a Levels in Tuberculosis Patients.” Journal of Pharmaceutical Research International, July 13, 2021, 40–44. https://doi.org/10.9734/jpri/2021/v33i37A31977.

17. Bhadarge, Gangaram, Pratibha Dawande, NandkishorBankar, and Raunak Kotecha. "Glycaemic Regulation with Zinc Combination in Type 2 Diabetes Mellitus." Journal of Pharmaceutical Research International, July 21, 2021, 33–37. https://doi.org/10.9734/jpri/2021/v33i38A32057.
18. Bhadarge, Gangaram, Pratibha Dawande, NandkishorBankar, and Raunak Kotecha. "Study of Serum Pancreatic Amylase and Lipase Enzyme in Patients with Type 2 Diabetes." Journal of Pharmaceutical Research International, July 20, 2021, 197–201. https://doi.org/10.9734/jpri/2021/v33i37B32039.
19. Bhadarge, Gangaram, Saurabh Hadke, Neha Bhatt, and MeghaliKaple. "To Impact of Vit-D in Pulmonary Tuberculosis Patients Receiving DOTS." Journal of Pharmaceutical Research International, December 15, 2021, 331–35. https://doi.org/10.9734/jpri/2021/v33i58A34123.
20. Bhagat, Rani T., Santosh R. Butle, Deepak S. Khobragade, Sagar B. Wankhede, Chandani C. Prasad, Divyani S. Mahure, and Ashwini V. Armarkar. "Molecular Docking in Drug Discovery." Journal of Pharmaceutical Research International, June 3, 2021, 46–58. https://doi.org/10.9734/jpri/2021/v33i30B31639.
21. Bhagwatkar, Sawari, Pratik Phansopkar, and Neha Chitale. "Physiotherapy Rehabilitation in Operated Case of Patellar Fracture and Medial Malleolus Fracture- A Case Report." Journal of Pharmaceutical Research International, November 23, 2021, 266–70. https://doi.org/10.9734/jpri/2021/v33i51A33492.
22. Bhainsora, RaviSingh, PradeepShriram Patil, AjinkyaSureshraoGhogare, and GanpatlalKodarbhaiVankar. "A Cross-Sectional Study of Prevalence and Types of Sexual Dysfunction among Married Male Patients with Alcohol Dependence Syndrome Attending Tertiary Healthcare Center from Central Rural India." Journal of Education and Health Promotion 10, no. 1 (2021): 47. https://doi.org/10.4103/jehp.jehp_560_20.
23. Bhake, Arvind, and Kaustubh Kharche. "Diagnosis of Senile Amyloidosis by Fine Needle Aspiration Biopsy and Cell Block from Abdominal Fat Pad." Journal of Pharmaceutical Research International, July 29, 2021, 84–90. https://doi.org/10.9734/jpri/2021/v33i39A32145.
24. Bhamra, Jasraj Kaur, Waqar M Naqvi, and Sakshi P Arora. "Effect of Smartphone on Hand Performance and Strength in the Healthy Population." Cureus, June 21, 2021. https://doi.org/10.7759/cureus.15798.
25. Bhamra, Manpreet Kaur. "Effectiveness of Short Wave Diathermy and Acupuncture with Supervised Active Exercise for the Treatment of Frozen Shoulder: A Case Report." Bioscience Biotechnology Research Communications 14, no. 6 (June 15, 2021): 77–80. https://doi.org/10.21786/bbrc/14.6.18.
26. Bhandekar, Bhagyashree, and Akash More. "A Successful ART Treatment of Advanced Maternal Age Pregnancy with HRT Along with Donor Oocytes: A Case Study at Wardha Test Tube Baby Centre." Journal of Pharmaceutical Research International, July 10, 2021, 169–75. https://doi.org/10.9734/jpri/2021/v33i36A31939.
27. Bhansali, Pratik Jayaprakash. "Intratesticular Simple Cyst - Ultrasound and Elastography Appearance." Journal of Evolution of Medical and Dental Sciences 10, no. 20 (May 17, 2021): 1561–62. https://doi.org/10.14260/jemds/2021/326.
28. Bharti, Nisha, Neha Bhatt, and SwarupaChakole. "Significance of Immune System to Fight COVID-19 and Its Co-Relation with Physical Exercise and Nutrition." Journal of Pharmaceutical Research International, July 20, 2021, 224–28. https://doi.org/10.9734/jpri/2021/v33i37B32043.
29. Bhaskarwar, Yash Abhinav. "Impact of Psychological Behaviour and Social Effects of COVID-19 Lockdown." Journal of Pharmaceutical Research International, July 7, 2021, 181–87. https://doi.org/10.9734/jpri/2021/v33i35B31918.
30. Bhatero, Disha, PunamSawarkar, Vaishnavi Paraskar, and Gaurav Sawarkar. "Protocol of an Observational Study Based on the Prevalence of Essential Hypertension in Different Types of Prakruti in Wardha City, India." Journal of Pharmaceutical Research International, July 12, 2021, 161–66. https://doi.org/10.9734/jpri/2021/v33i36B31963.
31. Bhatia, Avni. "Role of Drugs in COVID 19 Patient: A Review." Journal of Pharmaceutical Research International, July 9, 2021, 99–105. https://doi.org/10.9734/jpri/2021/v33i36A31931.
32. Bhoge, Shruti, Pratik Phansopkar, and Neha Chitale. "Physiotherapeutic Approach for Osteochondroma of 4th And 5th Ribs - A Case Report." Journal of Pharmaceutical Research International, November 17, 2021, 287–91. https://doi.org/10.9734/jpri/2021/v33i50A33410.
33. Bhola, Rajiv Dharampal, and Waqar Mohsin Naqvi. "Maxillary Defect Correction by Aesthetics." Pan African Medical Journal 39 (2021). https://doi.org/10.11604/pamj.2021.39.160.30163.
34. Bhola, Rajiv Dharampal, Sweta Gajanan Kale Pisulkar, Surekha Anil Dubey Godbole, Hetal Satish Purohit, and Anjali Bhoyar Borle. "Maxillofacial Prosthesis for Combined Intra and Extra-Oral Defect – A Case

Report." Journal of Evolution of Medical and Dental Sciences 10, no. 8 (February 22, 2021): 550–54. https://doi.org/10.14260/jemds/2021/119.

35. Bhonde, Prajwal, AchitaSawarkar, and Mayur Wanjari. "A Case Report on Permanent Dual Chamber Pacemaker." Journal of Pharmaceutical Research International, October 30, 2021, 873–77. https://doi.org/10.9734/jpri/2021/v33i47A33087.