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Intractable Hiccups, an Unusual Presentation of Renal Cell Carcinoma

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Abstract

Hiccups are involuntary spasms of the diaphragm with closure of the glottis. This involves a complex neural pathway which includes the phrenic, vagus and the sympathetic pathways, it is usually self-limiting and resolves within a few minutes after onset. Hiccups are described as chronic when it lasts more than 48 hours and intractable when it persists for more than a month. Intractable hiccups are said to have an organic cause in 80% of cases and the remaining 20% psychogenic in origin, Some of the organic causes of intractable hiccups include: liver cancer, adrenal tumours, and kidney tumours. We present a case of right renal cell carcinoma which presented as intractable hiccups and was successfully managed by performing a radical right nephrectomy.

Keywords

Hiccups, Intractable Hiccups, Renal Tumour, Case Report

1. Introduction

Renal cell carcinoma is a malignant tumor arising from the renal parenchyma and accounts for 2% - 3% of all adult malignancies, and 80% of all primary renal tumors [1]. The classic triad of flank mass, flank pain and hematuria present in about 30% of patients. They also present commonly with symptoms of metastasis to lungs, bone, liver and brain. Other rare documented presentations of renal cell carcinoma include cutaneous and intraoral metastasis [2], dysphagia from esophageal metastasis [3], and jejunal metástasis [4]. Renal cell carcinoma presenting only as intractable hiccup is an unusual presentation.

Hiccups are involuntary spasms of the diaphragm with closure of the glottis.

Based on the duration of symptoms, hiccups can be described as chronic, lasting more than 48 hours, or intractable, lasting more than one month [5]. The hiccup reflex is a complex one involving several neural pathways. The afferent limb includes the phrenic and vagus nerves and the sympathetic chain [6]. The central mediators are thought to be the medulla oblongata and reticular formation of the brainstem interacting with phrenic nerve nuclei and hypothalamus, and non-specific areas in the spinal cord between C3 and C5 [7], and the phrenic nerve with accessory neural connections to the glottis forming the efferent limb.

Most episodes of hiccups are benign, of acute onset and self-limiting, typically resolving within a few minutes of onset. Intractable hiccups, however, are reported to have an organic cause in 80% of cases, with the remaining 20% thought to be psychogenic [8]. Intractable hiccups have been reported in 4% of patients with advanced cancer [9]. Pathologies in the adrenal glands and kidney, particularly the superior pole, irritate the diaphragm and phrenic nerve, activating the hiccup reflex.

We report on a case of intractable hiccups from a right renal tumour which was successfully managed at the Korle Bu Teaching Hospital (KBTH), in Accra, Ghana and review the literature.

2. Case Presentation

A 66-year-old male with a 2-yr history of intractable hiccups was referred to KBTH on account of a right renal mass on USG for a non-specific abdominal pain.

Patient is a known hypertensive and diabetic of 20 and 15 years, both of which are well controlled on Atenolol, Lisinopril, nifedipine and glibenclamide respectively.

He had received several medications over the period without relief.

He had no symptoms suggestive of kidney cancer at presentation except for the incidental finding on ultrasound scan.

He smoked for a short period and stopped 40 years ago, he holds a diploma in industrial refrigeration but has been a trader for over 30 years. He has no personal history of cancer and has not had any exposure to agro-chemicals.

He is the second of eight children of his parents, has a strong family history of malignancies, two of his siblings are deceased, one due to a renal tumour and the other a liver disease, a third sibling is currently being treated for oesophageal cancer. Both his parents are deceased all due complications of hypertension. He has no family history of diabetes.

His examination was essentially normal His haemoglobin was 11.4 g/dl. He had an elevated creatinine level of 195 umol/l and eGFR of 30 ml/min. However, the electrolytes were all normal.

Abdomino-pelvic Computed Tomography (CT)-scan revealed a well-defined non enhancing mass measuring 9.0 × 7.5 × 6.7 cm originating from the superior pole of the right kidney and growing out into the peri-renal space with mixed densities, mainly solid with no cystic components (**Figure 1**).

Figure 1. Superior pole tumour of the right kidney, growing out into the peri-renal space with mixed densities (arrowed).

Histology of a CT-guided biopsy was positive for renal cell carcinoma (RCC) of the right kidney.

Radical nephrectomy was thus performed with histology of the gross specimen confirming the Renal cell carcinoma of the papillary subtype; stage pT2aN0M0.

Patient had uneventful recovery with complete resolution of his hiccups post operatively. He has been receiving follow-up care at the oncology department of KBTH.

3. Literature Review/Discussion

Various causes of intractable hiccups have been documented, these include irritations in the ears, nose and throat, other more serious causes like central nervous disorders; for example, Encephalitis, meningitis, multiple sclerosis and stroke, metabolic disorders and some drugs including diabetes, chronic kidney diseases, alcoholism, anaesthesia, barbiturates, steroids and tranquillizers have also been implicated.

Renal tumours presenting as intractable hiccups are rare, a few however, are documented in literature.

In a case by Neumann *et al.*, a 64 years old male was reported to have a left renal mass with bilateral hilar lymphadenopathy and pulmonary nodules for which he presented as persistent hiccups, this patient underwent a radical nephrectomy and lymphadenectomy and histological studies of his tumour was Sarcoidosis, he had relief of the hiccups following the surgery [10].

A case of subcapsular renal abscess which presented as persisted hiccups was reported by Flanagan *et al.*, in a 47 years old male. This patient also had fever, nausea, abdominal pain and vomiting, the hiccups resolved following percutaneous drainage of the abscess and antibiotics [8].

Liao *et al.* also reported an 82 years old male who presented with a two months history of persistent hiccups associated with a six months history of abdominal distension and nausea, imaging studies show a giant left hydronephrosis and a T2N0M0 transitional cell carcinoma, following drainage of the hydronephrosis and nephrectomy the hiccups resolved [11]. Another case of intractable hiccups was reported by Pathmanathan *et al.*, of a 65 years old male who also presented with significant weight loss and a CT-scan images showed bilateral suprarenal tumours, this patient had biopsy of the masses which showed a histology of bilateral adrenal lymphoma, he was managed with chemotherapy and had resolution of his hiccups [12]. A similar case was reported by Srirangalingam *et al.* in a patient who was later diagnosed with Addison's disease secondary to disseminated histoplasmosis, this patient presented with intermittent persistent hiccups, fever and hyperpigmentation of the palms. A CT-scan showed bilateral adrenal masses, patient's general condition improved including resolution of the hiccups following treatment [13].

4. Conclusion

Hiccups are usually acute in onset, benign in origin and mostly self-limiting. However it could be a symptom of a more severe illness including renal malignancies especially when it is persistent, intractable or recurrent, it always requires a high index of suspicion and a thorough and complete evaluation to reach the underlying diagnosis.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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