

## Therapeutic Gastroscopy in Idiopathic Persistent Hiccups: A Case Report

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### Abstract

A 61-year old patient with idiopathic hiccups since 2 weeks experienced immediate relief after upper endoscopy, now lasting for one month. To our knowledge, this is the first report of a therapeutic gastroscopy in a case of persistent idiopathic hiccups. We agree that this 'therapy' is more invasive than pharmacological intervention, but upper endoscopy is part of the work-up for persistent idiopathic hiccups. Moreover, pharmacological treatments are not based on high quality trials, do have side effects and hiccups often upon therapy cessation. Therefore, we believe that upper endoscopy could be of therapeutic use in some of these patients.

**Keywords:** Upper endoscopy; Persistent hiccups

### Introduction

Hiccups, or singultus, are caused by involuntary intermittent contractions of the diaphragm, resulting in sudden inspiration, followed after approximately 35 ms by abrupt closure of the glottis, thus causing the characteristic and onomatopoeic 'hic' sound.

Occasional hiccups are common and usually cease within the same day. This self-limiting and benign type of singultus is referred to as acute, while hiccups lasting for more than 48 hours are considered persistent. Singultus lasting longer than one month is termed intractable [1].

Persistent hiccups, although uncommon, are exhaustive and have a serious impact on the patient's quality of life. Persistent hiccups are often a symptom of underlying disease and may pose a diagnostic challenge because the etiology is countless. In most cases, persistent hiccups are caused by stimulation of the phrenic or vagal nerve somewhere along their course through the neck, chest and abdomen. Persistent and intractable hiccups are most often found in cancer patients, but CNS disorders (infection, ischemic, tumor, or trauma), and toxic, pharmacological and metabolic causes are also common [2]. In many cases the cause remains obscure or idiopathic.

Treatment of persistent hiccups is often difficult and includes physical, pharmacological and rarely surgical interventions. We would like to add upper endoscopy as another treatment possibility to the long list of therapeutic options.

### Case

A 61-year-old patient, known with hepatocellular carcinoma, diabetes mellitus type II, Parkinson's disease and a history of reflux esophagitis, presented with persisting hiccups since two weeks. He was exhausted and complained of thoracic muscle pain.

Several non-pharmacological maneuvers to alleviate the hiccups had failed: withholding breath, purposely gasping, Valsalva manoeuvre, swallowing a spoon of granulated sugar, drinking cold water, drinking water in small sips.

A workup was started according to the algorithm suggested by Steger et al. [2]. History taking revealed previous episodes of hiccups within the last months, lasting for several days and then resolving spontaneously. The patient had started taking pramipexole for Parkinson's two months earlier, but he was not very compliant. He was taking pantoprazole 40 mg/d for GERD and denied any gastric or esophageal pain. Physical examination was normal. Laboratory findings showed no particularities. CT and MRI of the thorax and the abdomen showed stable hepatocellular carcinoma, without signs of ingrowth in the diaphragm or metastasis. To exclude esophageal disease, we performed an upper endoscopy, which confirmed the presence of mild esophagitis. When the endoscope was pulled out, the hiccups abruptly stopped. When inquired, the patient stated that he had experienced the same therapeutic effect of a gastroscopy during an earlier episode of hiccups.

### Discussion

To our knowledge, this is the first report of a "therapeutic" upper endoscopy for persistent hiccups. We hypothesize that the endoscope triggered either the vagal or phrenic nerve through the esophageal wall, which stopped the hiccups. The fact that he experienced the same result after a previous endoscopy enforces our theory. Until today, approximately 1 month after the endoscopy, the patient remained free of hiccups.

We acknowledge the more invasive and probable temporary nature of this "therapy", but upper endoscopy is part of the work-up for persistent hiccups. Moreover, we would also like to point out drug-induced side effects that have been reported with pharmacological treatment and that cases have been described where hiccups returned on cessation of the administered drug.

Both Parkinson's disease per se and treatment with dopamine agonists have been described to cause hiccups [3]. In our patient with known hepatocellular carcinoma, we initially assumed invasion of the tumor in the diaphragm or metastatic disease, but these were ruled out by further investigations. After the initial negative work-up, and Parkinson's disease/treatment being a common cause of hiccups, we concluded that the hiccups were probably Parkinson related. However, to exclude other common causes of singultus, including GERD and

esophageal cancer, upper endoscopy was performed with the unexpected therapeutic effect.

Treatment of persistent hiccups is based on the underlying cause, but in idiopathic hiccups symptomatic treatment is necessary. Literature on treating idiopathic persisting or intractable hiccups recommends physical maneuvers, such as interrupting respiratory function, stimulating the nasopharynx or uvula, vagal stimulation and counteracting possible irritation of the diaphragm in the first place. If these fail, several pharmacological agents have been reported to provide relief in idiopathic persistent and intractable hiccups [2]. As a last resort, surgery could be a solution by blocking the phrenic nerve. Acupuncture has also been reported as an effective treatment in cancer patients [4]. However, the evidence for the treatment of persistent hiccups is mostly based on anecdotal experience and case reports. Two recent systematic reviews did not reveal any high quality studies [2,5]. Based on limited data, baclofen, gabapentin, chlorpromazine and metoclopramide could be considered as pharmacological treatment options for persistent hiccups [2]. We agree with Moretto et al. [5], who conclude that there is insufficient scientific power in the literature to formulate evidence-based guidelines for the treatment of idiopathic persistent and intractable hiccups. Moretto suggested multi-center or multi-national RCTs, ideally comparing non-pharmacological and pharmacological treatments [5], but as this condition is relatively

uncommon and often under-reported it will be very difficult to perform this kind of high quality study in a sufficient number of patients.

Until then, we will have to continue treating the patients with persistent or intractable hiccups according to expert advice. Upper endoscopy, which is often performed to rule out esophageal disease, could be of therapeutic use in some of these patients.

## References

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