

Gastro-oesophageal reflux and “epileptic” attacks: casually associated or related? Efficiency of antireflux surgery

A case report

EUGENIO FIORENTINO, GIANNI PANTUSO, ALESSIA CUSIMANO, STEFANIA LATTERI, ACHILLE MASTROSIMONE, CALOGERO CIPOLLA

Dipartimento di Chirurgia Oncologica – Policlinico Universitario - Palermo

Correspondence to: Prof. Eugenio Fiorentino – Dipartimento di Oncologia – Sezione di Chirurgia Oncologica – Policlinico Universitario – Via del Vespro, 129 – 90127 Palermo

Riassunto

Sebbene in letteratura sia già stata riportata una possibile correlazione fra la malattia da reflusso gastroesofageo e l'apnea ostruttiva notturna, non è mai stata ipotizzata un'associazione della stessa con l'epilessia.

Riportiamo il caso di un paziente con ernia iatale da scivolamento, esofago corto ed esofagite, che negli ultimi dieci anni lamentava non soltanto tipici sintomi da reflusso, ma anche sintomi da apnea ostruttiva notturna e occasionali attacchi cosiddetti simil-epilettici notturni.

Sottoposto a parziale riduzione dell'ernia e plastica antireflusso posteriore, si sono ridotti drasticamente non soltanto i sintomi da reflusso ma considerevolmente anche il numero di attacchi simil-epilettici. Il nostro caso suggerisce che episodi simil-epilettici in pazienti con apnea ostruttiva notturna possono essere correlati alla contemporanea presenza di malattia da reflusso associata a ernia iatale e che il trattamento chirurgico di questa può migliorare anche i problemi neurologici.

Parole chiave: ernia iatale, reflusso gastroesofageo, attacchi epilettici, apnea notturna



Introduction

Gastro-oesophageal reflux disease (GORD) may be associated with other related conditions such as hiatus hernia and with complications including various grades of oesophagitis. Therapeutic management of GORD may sometimes involve surgery, with the creation of an antireflux barrier, as in total or partial antireflux procedures. A possible link between GORD and obstructive sleeping apnoea (OSA) has been suggested¹ but there has never been any suggestion of an association with epilepsy, and epileptic attacks have not so

far been included among gastro-oesophageal reflux disease symptoms.

Case presentation

The case was that of a 35-year-old man suffering from GORD symptoms for the last ten years, with heartburn, acid regurgitations and chest pain, not associated with meal times and more frequent during the night. The GORD symptoms could be partially suppressed by the use of proton pump inhibitors (PPI).

The patient also complained of nocturnal snoring and episodes previously defined elsewhere as “epileptic”, occurring about one every two months or sometimes

more and only during the night, during which he had suffered the fracture of his right arm and the dislocation of his left shoulder and he had bitten his tongue; he was therefore treated with phenobarbital 100 mg/day.

The patient underwent endoscopy, which resulted in a diagnosis of “class B oesophagitis according to the Los Angeles Score², sliding hiatus hernia only slightly reduced by gastric insufflation, and a short oesophagus”.

Oesophageal motility study showed intrathoracic dislocation of the lower oesophageal sphincter (LOS); LOS pressure < 10 mm Hg; medio-distal, aspecific, hypotonic, dyskinetic motor activity.

Twenty-four hour pH monitoring showed a severe acid gastro-oesophageal reflux with a De-

Meester score of 126.5 and barium study confirmed the presence of a sliding hiatus hernia (Fig. 1), partly reducible in an upright position, with associated free gastro-oesophageal reflux, and dyskinesia with delayed oesophageal emptying.

In order to investigate the so-called “epileptic” seizures, the patient underwent magnetic resonance (MR), both direct and with i.v. contrast medium; no alterations were identified in the morphology, volume or site of the ventricular system, the fluid spaces, the brainstem, the cerebellum and the cerebral hemispheres. A basic electroencephalograph (EEG) proved normal, while a neurological examination suggested that the “epileptic” attacks might possibly be brought about by temporary nocturnal hypoxia, linked to the GORD and/or to the hiatus hernia.

The patient underwent laparoscopic surgery to reduce the hiatus hernia and a partial posterior 240° fundoplication. The rather unusual choice of performing a partial antireflux procedure was determined mainly by the widespread oesophageal hypokinesia identified by the instrumental investigation during the preoperative diagnostic work-up³. Before being sent home, the patient was prescribed drug treatment with a PPI (omeprazole 40 mg/day) and, for the first 8 weeks, a mainly semi-solid diet.

At the one year post-operative follow-up, the patient reported that the reflux symptoms had disappeared and that the “epileptic” episodes had occurred only three times during the year without causing any kind of injury and



Summary

Gastro-oesophageal reflux and “epileptic attacks”: casually associated or related. Efficiency of antireflux surgery: a case report. E. Fiorentino, G. Pantuso, A. Cusimano, S. Latteri, A. Mastrosimone, C. Cipolla

Although a possible link between gastro-oesophageal reflux disease (GORD) and obstructive sleeping apnoea has already been reported in the literature, there has never been any suggestion of an association with epilepsy, and epileptic attacks have not so far been included among gastro-oesophageal reflux disease symptoms.

We report the case of a patient with gastro-oesophageal reflux disease associated with a sliding hiatus hernia, a short oesophagus and oesophagitis, who for the last ten years had not only presented the typical symptoms of gastro-oesophageal reflux, but also symptoms of obstructive sleep apnoea and epileptic-like attacks occurring occasionally and only during sleep. Partial posterior fundoplication was performed and considerably reduced the reflux symptoms, and in addition brought about a drastic decrease in the number of epileptic-like attacks.

Our case suggests that epileptic-like episodes in patients with obstructive sleeping apnoea may well be linked to the simultaneous presence of GORD associated with hiatus hernia, and surgical treatment of GORD may bring about an improvement of the neurological problems.

Key words: hiatus hernia, gastro-oesophageal reflux, epileptic attack, sleeping apnoea

Chir Ital 2008; 58, 6: 689-696

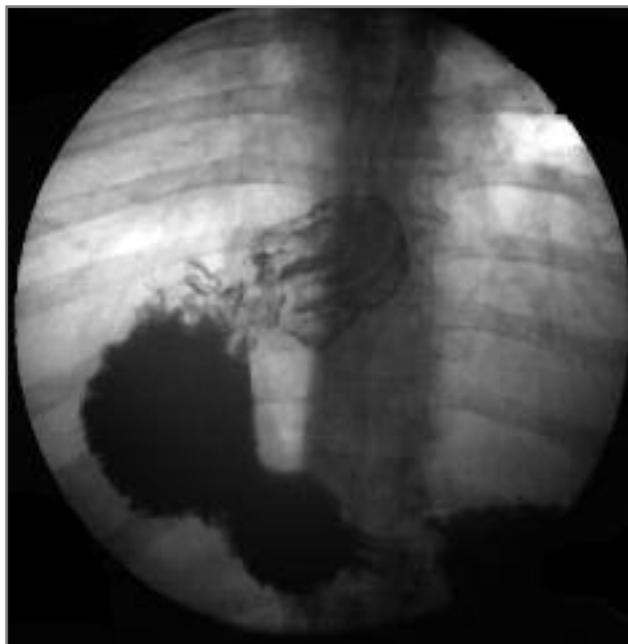


Fig. 1. The sliding hiatus hernia on prone oesophagogram.

were always associated with a certain quantitative and qualitative dietary abuse. He had been able to reduce the phenobarbital treatment to 100 mg/day soon after the three “epileptic” episodes for a week or two only. Nocturnal cardio-respiratory monitoring one year after surgery identified long periods of air-flow limitation in the upper respiratory tract, the presence of slight apnoea and hypopnoea during sleep, but with SaO₂ values never low enough to trigger “epileptic” attacks.

Discussion

GORD is an extremely frequent clinical condition, with an incidence of about 40% in the adult population of the Western

world⁴. It might be associated with hiatus hernia and complications such as oesophagitis and Barrett’s oesophagus.

Similarly, obstructive sleep apnoea (OSA) is often found in the general population between the ages of 30 and 60 years, with an incidence of from 9 to 24% in men and 4 to 9% in women¹.

An association between the above-mentioned pathological conditions might thus seem purely casual and brought about by the high rate of both diseases. Recent studies, however, have shown that the frequency of GORD in OSA patients is as high as 54-76%¹.

Our patient presented symptoms both for reflux disease, with frequent episodes of heartburn, acid regurgitation and chest pain, and also some symptoms of

OSA, such as nocturnal snoring. He also reported episodic attacks defined as epileptic – always and only during the night – which he could never remember, but which had caused serious injuries, as mentioned previously. A neurological examination suggested that the epileptic seizures might be due to episodes of apnoea and hypopnoea during sleep and this was subsequently confirmed by the diagnosis of OSA resulting from nocturnal cardio-respiratory monitoring. Endoscopy, motility study and pH monitoring highlighted the condition of gastro-oesophageal reflux, hiatus hernia, short and hypokinetic oesophagus and Class B oesophagitis.

In our opinion, a hypothetical picture of several causal connections therefore emerged. According to the literature⁵, the “epileptic” attacks were due to aggravation of the OSA episodes suffered by the patient, probably brought about by the aspiration of refluxed material which caused irritation of the upper airways, leading to their partial obstruction and abduction of the true vocal chords⁶.

The patient underwent partial fundoplication, with the partial reconstruction of the antireflux barrier, which led to a considerable reduction in the frequency and intensity of the reflux episodes, as shown by the subsequent disappearance of the typical disease symptoms. The antireflux surgery also led to a decrease in the number of epileptic-like attacks from 7 to 3 a year, without any injuries; these attacks were always linked to unsuitable feeding habits or an inadvisable life-style.

Conclusion

We suggest that the occurrence of epileptic-like episodes in patients with OSA is not casually associated but may well be linked to the simultaneous presence of GORD associ-

ated with hiatus hernia, with the aspiration of gastric refluxate into the upper respiratory tract which would result in a deterioration of nocturnal hypoxxygenation and trigger the "epileptic" attacks. The observation of our clinical case prompts us to suggest that surgical treatment

of GORD, possibly combined with the use of PPI drugs, may bring about an improved and easier management of the respiratory disorders involved and, as a result, of the neurological problems, with a resulting reduction in the need for antiepileptic drugs.

References

1. Adam M Zanation, Brent A Senior. The relationship between extraesophageal reflux (EER) and obstructive sleep apnea (OSA) *Sleep Medicine Reviews* 2005;9:453-8.
2. Lundell LR, Dent J, Bennett JR, Blum AL, Armstrong D, Galmiche JP, Johnson F, Hongo M, Richter JE, Spechler SJ, Tytgat JN, Wallin L. Endoscopic assessment of oesophagitis: clinical and functional correlates and further validation of the Los Angeles classification. *Gut* 1999;45:172-80.
3. Wetscher G J, Glaser K, Wieschmeyer J, Gadenstaetter M, Prommegger R, Proffantzen C. Tailored antireflux surgery for gastroesophageal reflux disease: effectiveness and risk of postoperative dysphagia. *World J Surg* 1997;21:605-10
4. Locke GR, Talley NJ, Fett SL, Zinsmeister AR, Melton LJ. Prevalence and clinical spectrum of gastroesophageal reflux: a population based study in Olmsted county, Minnesota. *Gastroenterology* 1997;112:1448-56.
5. Manni R, Terzaghi M, Arbasino C. Obstructive sleep apnea in a clinical series of adult epilepsy patients: frequency and features of the comorbidity. *Epilepsia* 2003;44:836-40.
6. Kasasbeh A, Kasasbeh E, Krishnaswamy G. Potential mechanisms connecting asthma, oesophageal reflux, and obesity/sleep apnoea complex. A hypothetical review. *Sleep Med Rev* 2007; 1:47-58.