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Dysphagia and Beyond: A Case Report

F. Monacelli[1*], M. Tardivelli[1] and P. Odetti[1]

[1]Section of Geriatrics, Department of Internal Medicine and Medical Specialties (DIMI), University of Genova, Genova, 16132, Italy.

Authors' contributions

This work was carried out in collaboration between all authors. Authors FM and MT recorded the case study, managed the literature search and wrote the first draft of the manuscript. Author PO revised the manuscript scientifically. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Aims: Swallowing is a complex mechanism subjected to functional changes with aging, which may result either in compensatory mechanisms associated to healthy aging (presbyphagia) or to pathogenetic trajectories leading to dysphagia. Little is known on the multifactorial origin of dysphagia in older adults, especially in patients affected by frailty or pre frail status as well as the lack of effective therapeutic options too frequently inform ageist approaches on this true geriatric syndrome.
Presentation of Case: We report a clinical case, dealing with a misdiagnosis of dysphagia, showing symptoms in an uncommon and striking clinical way, as a denture inadvertent swallowing during breakfast with mixed consistency food.
Discussion: The case highlighted the pivotal role of a comprehensive and timely assessment of dysphagia in geriatrics and the growing need of knowledge sharing and training for professionals involved in the care of elderly, especially in Nursing Home.
Conclusion: Adaptive techniques including dietary changes-avoiding, strengthening dysphagia and adequate dietary intake represent the basic principle of dysphagia rehabilitation and may be act efficiently by all the professionals in geriatrics, outweighing as well that imperfect swallowing may be hazardous due to the danger of acute complications such as aspiration and inhalation pneumonia and to the long-term consequences like malnutrition, sarcopenia, frailty, disability and enhanced mortality.

Keywords: Dysphagia dynamic trajectories; elderly; multifactorial origin; frailty.

**Corresponding author: E-mail: Fiammetta.Monacelli@unige.it;*

ABBREVIATIONS

Acronyms legends: CIRS: Cumulative Illness Rating Scale; MMSE: Mini Mental State Examination; GDS: Geriatric Depression Scale; ADL: Basic Activities of Daily Living; MNA: Mini Nutritional Assessment; ACE inhibitor: Angiotensin Converting Enzyme inhibitor; SSRI: Selective Serotonin Reuptake Inhibitor.

1. INTRODUCTION

The intricate mechanism of swallowing is composed of three phases: oral, pharyngeal, and oesophageal, whose fine coordination resulted in the efficacy of bolus ingestion and propulsion throughout the gastrointestinal tract. To safely perform swallowing, the upper aero-digestive tract has to integrate air system to breath and to talk as well as to protect the airway from food, fluid, secretions and medications passage. This complex mechanism implies precise timing, coordination of six cranial nerves (IX, X, XI and XII) and supratentorial input, orchestrating motor behaviours, together with psychological and sensory input, acted both voluntary and involuntary.

With aging, the swallowing process is subjected to a series of anatomic-functional alterations, generally referred as presbyphagia [1]; it is an age-related slowing down of swallowing with subtle changes in swallow respiratory coordination, due to decreased muscle mobility and/or reaction times, frequently misattributing to a pathogenetic impairment or to overt organ disease. Indeed, age-related changes of swallowing increase the risk for dysphagia in older adults due to diminished functional reserve of the neck and head anatomy, which is known to cumulate with the comorbidity status, whose prevalence increases with aging together with polipharmacotherapy, thus amplifying the dysphagic risk.

Non pathological impairment of the swallow may be associated to healthy aging, representing compensatory protective mechanisms; therefore, the pathophysiological factors that affect individual ability to drink and eat safely still need greater investigation, implying a deeper understanding of the trajectories which may lead an older person to suffer from dysphagic complications [2]. Dysphagia is defined as a disruption in the swallowing process, with difficulty and/or lack of transporting a solid or liquid bolus from the mouth through the pharynx and esophagus into the stomach. Among the tangle spectrum of dysphagia, neurologic oropharyngeal dysphagia, caused by neuromuscular disorders, such as cerebrovascular insults and neurodegeneration is estimated of increased prevalence, according to the demography of aging, with outgrowing socioeconomic burden [3,4]. In spite of the tremendous epidemiological impact of dysphagia in different care settings [5], so far, there is a huge diagnostic underestimation and under treatment, which heavily hampers therapeutic interventions to restrain the disease burden and disability [6]. The comprehensive diagnostic assessment includes patient's history taking, physical examination with oral inspection, palpation, reliable screening dysphagia assessment and timely referral to specialists (laryngological, gastrological and neurological specialists) for videofluoroscopy and flexible endoscopic examination to formulate an appropriate diagnosis and to tailor the best therapeutic treatment [7].

This holistic approach is important to restrain the major complications associated to dysphagia, such as recurrent aspiration pneumonia and protein caloric malnutrition, which are known to precipitate frailty towards *failure to thrive* [8] with exceeding mortality, thus informing poorer prognostic outcomes [9,10].

In parallel, there is a growing need of professional' staff training and knowledge sharing of 'real word' disease to implement early diagnosis and deliver appropriate management and therapy [11].

When dealing with older people, especially with the *oldest old,* clinical issues become even more complicated as patient' complexity, underlying frailty or pre frail status, exceeding disability or clinical instability associated to an acute illness or hospitalization may significantly contribute to affect the spectrum of dysphagia clinical manifestations and course. Thus, it is conceivable a multifactorial origin for dysphagia, with a cumulating process of causative/contributive and reversible/irreversible factors, which may count for the intricate and highly, individualized trajectories of dysphagia in the single older patient.

This conceptual framework underlies the pivotal role of the comprehensive geriatric assessment to encompass the faceting core of dysphagia, which may be considered a true geriatric syndrome.

2. PRESENTATION OF CASE

According to that, we reported the clinical case of a 73 years old man, admitted to an Italian Nursing Home (NH) for physical therapy, due to an in hospital' immobilization syndrome developed as a complication of an infectious pneumonia. The patient's clinical history included arterial hypertension, arthritis, cholelitiasis, prostate adenoma, multinfartual encephalopathy, major depression reactive to sensorial deprivation (bilateral hypovisus after the failure of iridectomy for acute angle-closure glaucoma) and moderate grade postural instability of multifactor origin. The comorbidity status (CIRS 4/13) (Cumulative illness rating scale), ran in parallel with a polipharmacotherapy (ACE inhibitor as hypotensive drug, SSRI as psychoactive drug, benzodiazepine as hypnotic, paracetamol and ursodesossicolic acid). During the in hospital' stay, the patient showed partial functional dependence in basic activities of daily living, (ADL 4/6), preserving bed to chair passages, eating, faecal and urinary continence and a Tinetti score of 17/28. A mild cognitive impairment (MMSE 21/28) (Mini Mental State Examination) and a slight depressive status (GDS of 5/15) (Geriatric depression scale) had been diagnosed and the nutritional assessment indicated an increased risk of malnutrition (MNA 17/30) (Mini Nutritional assessment).

A mild grade dysphagia for liquids of undetermined origin was also clinically reported; no further diagnostic assessment for dysphagia was performed, as the patient experienced an occasional slight swallowing impairment but he would still retain the ability to eat and drink.

When the patient was admitted to the NH, he was clinically stable, with no acute symptoms evocative of impendent organ impairment. However, a physical disability and functional decline were detectable, thus making him eligible for an appropriate rehabilitation. A status of sarcopenia was assessed with handgrip performance below the normal age and sex-matched references. To note, the dysphagia-screening test 3-ounce water-swallowing test was performed and a modest swallowing impairment was reported [12].

Suddenly, five days after NH admission, the patient reported an acute throat pain, during breakfast, (which consisted of a cup of milk with cookies, as a mixed food consistency), describing it as ''food stuck in the esophagus'' followed by a subjective difficulty in swallow coordination and bolus propulsion. Nausea, vomiting, retching, diaphoresis, cough or respiratory complications were not observed.

At the physician oral inspection the patient's lower denture was found to be missing and a neck-thorax X ray showed the hypopharinx mucosal anchoring of the denture with no mucosal injury or mechanic respiratory impairment or complication (Fig. 1). A delicate endoscopic intervention successfully removed the denture from the trachea, achieving a timely therapeutic relief and restoring patient's healthy status. The patient was referred to the laryngological specialist for appropriate diagnostic and therapeutic assessment in probable misdiagnosed neurologic dysphagia.

Fig. 1. RX detection of patient's ingested lower jaw denture

Interestingly, the patient's oral inspection and examination showed a lack of dorsal tongue sensibility, of velum sensibility respectively, together with an impairment of oral, tongue and facial praxis. The patient itself referred of a progressive lack of mouth and tongue strength, mobility and time reaction throughout the hospitalization, which have made more difficult to manage the bolus ingestion and propulsion, especially with mixed food consistencies. The videofluoroscopy and flexible endoscopic examination further confirmed a moderate to severe swallowing disruption with paresis of larynx cordae verae, food and liquids stagnation in valleculae and multiple lung aspirations and penetrations of both types of bolus. No effective throat clearing mechanism and cough reflex was detected. Thus, the patient was diagnosed neurogenic dysphagia, due to the underlying brain vascular encephalopathy; the patient was taught compensatory strategies (such as posture changes application) to improve his swallowing performance, together with adequate dietary recommendations and changes- avoiding of liquids and mixed consistencies food, known to worsening dysphagia. Since the patient showed a moderate comorbidity and disability status and a reversible cause of dysphagia, a speech therapy and rehabilitation was considered appropriate in order to regain efficiency in remaining swallowing function and to enhance organ effectiveness and efficiency, together with a nutritional supplementation rich in amino acids.

3. DISCUSSION

The clinical case pinpointed dysphagia as a true geriatric syndrome, deserving timely investigation and clinical focus. Professionals involve in the care of older adults still suffer from a lack of knowledge and skills in this field, they simply consider dysphagia as an age-

related benign disorder, frequently unaware of the major risks and complications and of the poorer prognostic outcomes associated to the disease [11].

Nursing Homes in Italy are a high-density setting of *oldest old* frailty patients and staff' organization, knowledge and training is not sufficient to cope the growing complexity of these patients. Simple, handle-screening methods for dysphagia are available, showing adequate sensibility and they may be easily use by nurses and assistants involve in the care of elderly to deliver appropriate care [13]. Furthermore, adaptive techniques including dietary changes-avoiding, strengthening dysphagia and adequate dietary intake represent the basic principle of dysphagia rehabilitation and may be act efficiently by all the professionals in geriatrics. This is still the most effective way to regain efficiency on the remaining swallowing function. On the other hand, professionals have to know that impaired swallowing may be hazardous due to the increased risk of acute complications such as aspiration and inhalation pneumonia and to the long-term consequences like malnutrition, sarcopenia, frailty, disability and enhanced mortality [14].

4. CONCLUSION

This narrative case contains an instructional value, since it shows the importance of knowledge sharing and appropriate training among professionals in NH to deliver early appropriate care to the patient, focusing on the dynamic clinical course of dysphagia, accounting for reversible and irreversible risk factors; in this case, the aggravating factors cumulated to the predisposing neurogenic oropharyngeal dysphagia resulted to be the cognitive impairment, the sensorial deprivation, the sarcopenic status and the benzodiazepine use, resulting in the patient' low awareness of the event.

Moreover, this clinical report also indicate the need for early preventive and/or therapeutic tailoring interventions on the single dysphagic patient, acting through a genuine multidisciplinary intervention able to overcome the ageism and stigma associated to the geriatric frail patient.

CONSENT

The patient gave written informed consent to describe the clinical case.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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