

## Gastro-oesophageal Reflux, Some Data on Diagnosis and Clinical Evaluation

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### Abstract

**Introduction:** Treatment of gastro-oesophageal reflux involves number of therapeutic measures that eventually conclude with surgical treatment. It should be noted that surgical treatment should be the last resort to be used to treat this pathology, due to the complications and recurrences that this surgery may give.

**Materials and Methods:** This study included 59 children operated for gastro-oesophageal reflux with the laparoscopic method and for the same period 14 children operated with the open method. By gender in these two groups the study involves 34 males and 25 females in the first group of laparoscopic methods and 8 males and 6 females in the open method group. The average age of the treated children was 13.21 and 12.56 years old in the laparoscopic method, 7.34-year-old males and 8.15-year-olds in the open method.

Children after being diagnosed by radiology, pharmacology and after having received a proton pump prolonged long-term treatment for indications, were planned for intervention. Prior to the intervention, the child is evaluated in all respects and is subject to the full anesthetic protocol. Including biochemical balance, complete blood, cholesterol, blood group. The child is treated with general anesthesia with endotracheal intubation using as anesthetic inhaler and intravenous subjects.

**Conclusions:** Gastro-oesophageal reflux at childhood is a disease that has long been given particular attention, by both, pediatricians and pediatric surgeons. A pathology that in its benign form, that is non-pathological reflux captures, a very large percentage of children in the first year of life where, according to some studies, appears in 50% of cases with a maximum prevalence rise in the 4th month of life, in our results this aspect is not vulnerable, because we have only studied children who have been subjected to intervention. So are those children who have gone through all the main links of diagnosis and conservative treatment.

**Keywords:** gastro-oesophageal reflux, open method, laparoscopy

### 1. INTRODUCTION

Treatment of gastro-oesophageal reflux involves number of therapeutic measures that eventually conclude with surgical treatment. It should be noted that surgical treatment should be the last resort to be used to treat this pathology, due to the complications and recurrences that this surgery may give. The age of the patient's presentation the presence of complications or predisposing factors is a clue that helps us in treating this pathology. The vomiting without strain that occurs to the latitudes after the meal, is a symptom that can't be called a disease that calms if the latent after food is kept in elevated position. With the maturation of the lower esophagus sphincter this calms down and disappears almost over time. Seeing that the symptom was lifted from the raised position, it

was thought to be used chaliasia chair (chaliasia chair). It was soon noticed that this resulted in the increase in reflux (1), compared to the placement of children in the 30th grade. But it has been seen that the use of this overturning position is not without consequences and should be carefully applied according to a study (2) that the use of this position should be recognized as a treatment that has side effects associated with drug therapy. In a study (3) that sees the SIDS connection with the position, it is not recommended to use lateral positioners and that the child should be placed in the back position. This is the recap of AAP American Academy of Pediatric. Another method of treating these children is the obesity of the products they receive. This is not very applicable to the infant. As a thickener can use rice cereal flour. Now the pharmaceutical industry is approaching number

of solutions. The use of medications in the treatment of gastro-oesophageal reflux is a tangible reality. Use of motilium or cisapride which is a prokinetic agent that has very good clinical effects. The preparation has been shown to increase peristalsis increases the pressure of the lower esophagus sphincter and accelerates the gastric rupture. (4) In adults, the preparation is associated with causing cardiac arrhythmias that have been fatal. But the discovery of cardiac problems that this product could give in America led to the withdrawal from the market (5). However, it is in use with us, but it should be taken in account that treatment with it, should be as limited and prudent due to these complications.

**2. MATERIALS AND METHODS**

This study included 59 children operated for gastro-oesophageal reflux with the laparoscopic method and for the same period 14 children operated with the open method. By gender in these two groups the study involves 34 males and 25 females in the first group of laparoscopic methods and 8 males and 6 females in the open method group. The average age of the treated children was 13.21 and 12.56 years old in the laparoscopic method, 7.34-year-old males and 8.15-year-olds in the open method.

Children after being diagnosed by radiology, pharmacology and after having received a proton pump prolonged long-term treatment for indications, were planned for intervention. Prior to the intervention, the child is evaluated in all respects and is subject to the full anesthetic protocol. Including biochemical balance, complete blood, cholesterol, blood group. The child is treated with general anesthesia with endotracheal intubation using as anesthetic inhaler and intravenous subjects.

The data for these two groups were obtained through an elaborated type file with the help of statisticians from the BurloGarafolol Trieste Italy Institute. Data is collected prospectively based on this type file. The data has been collected and described in such a way that it is statistically analyzable. Type card data included: age, sex, anti-acid therapy, pathological morphology, fibrogastroscopy data, biopsy, impendecometry, barium passage.

During the study was evaluated the degree of scoliosis, the neurological clinic, the cause of neurological pathology, preoperative nutrition, the baseline pathology was examined according to ASA classification. During the study,

respiratory insurances, the use of barbiturates, the type of anesthesia used, postoperative analgesia, the use of sedatives, the time of extubation, reintubation, and respiratory assistance were evaluated. The intervention was considered, the laparoscopic approach to the open method.

**3. RESULTS**

Demographic data

**Table1.** Gender - Laparoscopic Group

	Frequency	Percentage	Cumulative Percentage
Male	34	57.63	57.63
Female	25	42.37	100.00
Total	59	100.00	

This table shows male demographic data for the first group.

**Table2.** Gender Group Open Method

	Frequency	Percentage	Cumulative Percentage
Male	8	57.14	57.14
Female	6	42.86	100.00
Total	14	100.00	

It is seen that the percentage and the second group is almost identical to the first group.

**Table3.** Average age

	Average laparoscopic age	Average age open method	P
Male	13.21±2.2	7.34±3.4	0.00568
Female	12.56±2.7	8.15±2.4	
Total average	12.7±2.5	7.8±3.1	

This table shows an important statistical difference between the average age of both groups.

Preoperative data

**Table4.** Refractive Therapy Group of Laparoscopic Methodes

Therapy antacid	Frequency	Percentage	Cumulative Percentage
Antiacid	2	3.39	3.39
Omeprazol	49	83.05	86.44
Omeprazol and antiacid	8	13.56	100.00
Total	59	100.00	

This table shows the use of preoperative therapy in all first group patients, divided by type of medication.

**Table5.** Antireflective Therapy Open Method Group

Therapy antacid	Frequency	Percentage	Cumulative Percentage
Omeprazol	9	64.28	64.28
Omeprazol and antiacid	5	35.72	100.00
Total	14	100.00	

This table shows the use of preoperative therapy in all second group patients, divided by type of medication.

As noted, anti-acid therapy is used in all patients involved in both groups.

**Table6.** Pathological morphology Laparoscopic Method Group

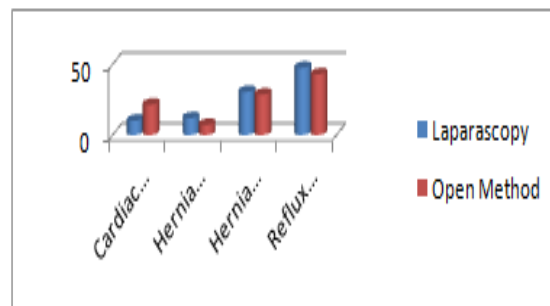
Pathologic morphology	Frequency	Percentage	Cumulative Percentage
Cardiac intrathoracic	6	10.17	10.17
Hernia paraesophageal	7	11.86	22.03
Hernia hiatale	18	30.51	52.54
Reflux without noticeable cause	28	47.46	100.00
Total	59	100.00	

In this table it is evidenced radiological findings in the laparoscopic methotrexate group by which we determined the anatomical cause of pathology. As noted in the data in 47% of cases it has not been possible to detect an actual anatomical cause of reflux.

**Table7.** Pathological Morphology Open Method Group

Pathologic morphology	Frequency	Percentage	Cumulative Percentage
Cardiac intrathoracic	3	21.43	21.43
Hernia paraesophageal	1	7.14	28.57
Hernia hiatale	4	28.57	57.14
Reflux without noticeable cause	6	42.86	100.00
Total	14	100.00	

In this table we have evidenced radiological findings in the open methotrexate group, where in the case of the first group we have determined the anatomical cause of the pathology. It is noticed an approximate frequency of the anatomical cause of pathology as in the case of the first group.



**Graph1.** Pathological morphology

**Table8.** Preoperative Fibrogastrosopopy Laparoscopic Method Group

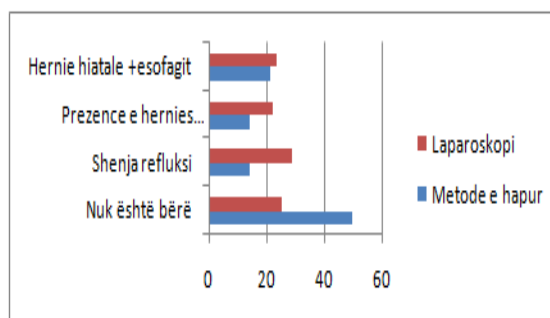
Fibrogastrosopopy	Frequency	Percentage
It's not done	15	25.42
Reflux sign	17	28.81
The presence of hiataryhernies	13	22.03
Herniehiatale + esophagitis	14	23.73
Total	59	100.00

The table presents fibroscopic data in laparoscopic patients. As seen in fibroscopy is a widely used examination, in almost 74% of patients. By this method we had the opportunity to determine the esophagitis morphologically and at the same time to obtain the histological material.

**Table9.** Preoperative Fibrogastrosopopy Open Method Group

Fibrogastrosopopy	Frequency	Percentage
It's not done	7	50.00
Reflux sign	2	14.29
The presence of hiataryhernies	2	14.29
Herniehiatale + esophagitis	3	21.42
Total	14	100.00

The table represents fibroscopic data in open method group patients. As it is noticed, fibroscopy is not performed in 50% of cases and this is more for objective reasons. In cases that have been performed in all cases, we have found signs of gastro-oesophageal pathology.



**Graph2.** Preoperative Fibrogastrosopics

**Table10. Histology**

Histology	Frequency	Percentage
It's not done	36	61.02
<b>Esofagit</b>	22	37.29
<b>Ezofag Barret</b>	1	1.69
<b>Total</b>	59	100.00

The table presents the histological data in the patients of the first group. In all cases in which biopsy was performed, the presence of esophagitis was noted. Histology is one of the finest points of an accurate diagnosis.

**Table11. Impednometry**

Impednometry	Frequency	Percentage
Normal reflux	3	5.08
Pathological Reflux	14	23.73
It has not been completed	42	71.19
<b>Total</b>	59	100.00

Impendencecometer a coherent examination presents a sensitivity of about 82% in this series.

**Table12. Binding Clinical Data - Impednometer**

Klinik –impendcometri	Frequency	Percentage
Clinical compatibility	7	11.86
No clinical compatibility	3	5.08
Not done	49	83.05
<b>Total</b>	59	100.00

In the table there is a consistency between clinical data and impednometry that goes to 70% of cases. The data show a lower sensitivity of impednometry, but this connection was realized in only 10 patients concluding that sensitivity is approximate.

**Table13. Degree of Scoliosis**

Scoliosis	Frequency	Percentage
<b>0</b>	9	15.25
<b>1</b>	22	37.29
<b>2</b>	22	37.29
<b>3</b>	5	8.47
<b>4</b>	1	1.69
<b>Total</b>	59	100.00

0- no scoliosis

1- <10 grade without any symptoms

2-> 25 grade with light pulmonary symptom

3-> 40 grades with indications for intervention

4-> 70 grade with pulmonary volume reduction

Scoliosis as one of the predisposing factors in gastro-oesophageal reflux is analyzed in this chart. 10% of patients have a 3-4 level scoliosis

that can cause anesthetic complications and operators.

**Table14. Neurological clinic**

Neurological clinic	Frequency	Percentage
Without neurological problems	16	27.12
Only dementia	1	1.69
Neuropathy flashed	3	5.08
Tetraparesis spastic	39	66.10
<b>Total</b>	59	100.00

Above is the neurological data of patients, where there is a high frequency of the presence of neurological pathologies.

It is clear, only 27% of patients have no neurological problems.

**Table15. The cause of neurological pathology**

The cause of neurological pathology	Frequency	Percentage
Without pathology	12	20.34
Prematurity	2	3.39
Perinatal Asphyxiation	26	44.07
Malformation SNQ	10	16.95
Chromosome abnormalities	6	10.17
Brain Infection	2	3.39
Fealopathic syndrome	1	1.69
<b>Total</b>	59	100.00

#### 4. DISCUSSIONS

Gastro-oesophageal reflux at childhood is a disease that has long been given particular attention by both pediatricians and pediatric surgeons. A pathology that in its benign form that is non-pathological reflux captures a very large percentage of children in the first year of life (6) where, according to some studies, appears in 50% of cases with a maximum prevalence rise in the 4th month of life. In our results this aspect is not vulnerable because we have only studied children who have been subjected to intervention. So are those children who have gone through all the main links of diagnosis and conservative treatment. It is nearly identical number of males and females in the laparoscopic group (Table 1) and in the open method group (Table 2). It is seen that we have a percentage of about 57% of men. This ratio of male women is also found in literature (7-9). When we look at the average age of childishly treated children, we notice a large change in the average age of the two groups (Table 3). This has come for several reasons. The first reason is that in the laparoscopic group are treated children up to 18 years of age, whereas in our

group we have treated children with a maximum age of 14 due to the different rules applied by the pediatric surgery clinic in Albania and Italy. But the other factor is that in the laparoscopic group there are many children who are neurological or scoliosis children so they have a diagnosed gastro-oesophageal reflux disease at a later stage. When we look at the results we can see that conservative treatment (Table 4) is used in all patients. Use of other proton pump inhibitors where omeprazole is the typical proponent. is an innovation that embraced more enthusiasm. The first reports have been very encouraging (10, 11) by seeing the Proton Pump Inhibitor (PPI) as a solution to the problem that could and was an alternative to intervention. Even in some books, it was seen as new era in the treatment of pathological reflux. But over time, this enthusiasm has fallen, seeing that recent studies (12) the effect of PPI on infants is low although no comparative studies with placebo have been conducted. Thus, the general impression is that the use of omeprazole is safe (13) as a therapeutic treatment but its efficacy is not proven. Using omeprazole is a drug that is highly effective for treating esophagitis. Thus, the use of omeprazole has a good effect on the treatment of symptoms of gastro-oesophageal reflux for this reason its use is one of the most effective conservative therapies in treating gastroesophageal reflux (13, 34). However, there are studies (12) that accuse him of a rise in gastroenteritis and an increase in pneumonia. As we have said above, it is also accused of hypomagnesium or of bone fractures. Omeprazole two study groups were used in all patients before intervention (Table 4.5). Diagnosis of gastro-oesophageal reflux besides clinical suspicion should pass into an examination protocol involving imaging study. This examination is a key examination in diagnosing gastro-oesophageal reflux as well as establishing a direct relationship between the clinic and pathology. What is important is that through this examination we can realize a prediction of anatomy or rather of the pathological morphology that caused this pathology before intervening. In our series, imaging is performed in all patients. (Table 6, 7). Through it we find that in 52.54% of cases we have found an anatomical factor such as intrathoracic kardia, paraesophageal hernia, hiatal hernia. But in the rest of the patients, only pure esophageal reflux is observed. We say that we have not seen a tangible anatomical factor. And in the series

operated there is the same pathology determining pathology. What is worth noting is that contrast imaging with the upper tract is a conventional image that has been protocols for many years. One of the important phases of the imaging protocol is the trendelenburg position that is needed to determine especially cases with pure esophageal reflux where the anatomical changes are not imaging-susceptible. The accuracy of imaging diagnosis is an open debate where it is thought that using ph-metrix is the most reliable method. (16) In this study it is seen that the barium study is lower than the ph-meter, 36% at 70 %. By comparing it with clinical data which in our opinion is not very accurate. (17) The fact of the accuracy of the imaging study can't be taken very basically by looking at our tables because we do not intervene in children unless we had a positive image. So, for us imaging is the key study in the diagnosis of gastro-oesophageal reflux and in determining surgical indications. So, determining the sensibility of this method is beyond the possibilities of this study. Differential diagnosis that can be accomplished through barium scopy is one of the strengths that this examination has. By means of it, it is possible to diagnose or suspect the possibility of mesenteritis, duodenal membrane, hypertrophic pylori stenosis. It seems that these pathologies are clearly separated from the clinic and the diagnosis of gastro-oesophageal reflux but the daily experience shows that this examination is often the case that has led us to an accurate diagnosis in diagnosing the errors of diagnosis. This is very important especially in the case of laparoscopic surgery because this surgery does not give us the possibility of intraoperative tactility that the diagnosis should be as accurate as possible. In (Graph 1) we have visually presented Table 6.7 data. It is seen that there is no significant difference in the percentage between imaging findings in both groups. Use of fibrogastroscopy as a sourcing and sometimes defining method. It is performed in more than 75% of cases. As can be seen in (Table 8) it is a routine method that has given us quite valuable data. Through it we have received information about reflux, esophagitis and presence of hiatal hernias. Fibrogastroscopy may well diagnose esophageal which is one of the inflammatory consequences of gastro-oesophageal reflux. But on the other hand, to determine the degree of esophagitis and to have a precise indication of the morphological changes and at the cellular

level, biopsy may also be performed. With the histology sections can be determined the esophagitis its degree and can also be diagnosed with the precancerous metaplasia like Barret's esophagus (18-20). Fibrogastroscopy also diagnoses hiatal hernias especially when they are large, allowing us to have a very accurate diagnosis and defined a more detailed operator plan. As seen from (Tables 8, 9) and from (Graph 2) fibrogastroscopy was performed in the first group in more than 75% of cases and in the second group in only 50% of cases. In (Table 10) it is clearly seen that the use of histology so differently of biopsy is a datum that concedes us in a more and more accurate diagnosis. The esophagus biopsy is not a routine exercise. The biopsy was performed in 37.29% of the cases. But taking in account that fibroscopy is performed in 75% of cases it is seen that the biopsy was performed in 52.27% of the cases that have performed fibrogastricopy in more than half of the patients. This has resulted in a clear morphological diagnosis. In children treated with us the esophagus biopsy is not an action that is still being protocols and has not been performed. It should be taken in account that the diagnosis of esophagitis does not interfere with interventionism (21). On the other hand, fibrogastroscopy and more esophageal biopsy in young children is an action that requires special susceptibility and a special technical skill (22). It is an action that may have its own complications and so in the balance benefit the risk at the time of the study it is seen that the benefit was scarce. One of the most important examinations we have and a diagnosis with a very high accuracy is impendecometry. Impendecometry is an examination that not only measures acid reflux but mats and refluxes are not acidic themselves. As a compiled and contemporaneous examination, one of the basic studies is how to diagnose how to carry out comparative studies because being digitized data is a measurable and comparable study. It is widely used in the patients analyzed in the first group. In (Table 11) it is seen that the use of impendecometry has been performed in 17 cases where the sensitivity in the group that has performed this examination is 82%. This is a lump which is lower than what is referred to in literature where the sensitivity of impendecometry is about 90%. According to many authors (22-25) it is seen that the ph-meter is considered as (gold standard) for the diagnosis of this pathology.

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### AUTHOR CONTRIBUTIONS

Literature research was conducted by Dr. SaimirHeta. It was his insistent work that made it possible to reach the conclusions in this article.

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