GERD and Feeding Problems in Infants and Children

Ciro Esposito  M.D. Ph.D.

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GER with symptoms

"Happy spittings"
NEUROLOGICALLY IMPAIRED CHILDREN

- Cerebral palsy
- Wheel Chair
- Feeding Problems
- Associated Malformations

GER +

NEUROLOGICALLY NORMAL CHILDREN

Only

GER
NEUROLOGICALLY NORMAL CHILDREN

Only GER
Indication for Surgery

It is important to underline the importance of a correct indication for surgery in children with GERD, in order to achieve good surgical results.

As a matter of fact, several papers report that in the majority of cases the failure of LARS is related to a wrong indication for surgery.

Pre-operative Evaluation

An accurate pre-operative evaluation of the patient is extremely important.

Pre-operative Evaluation#2

Manometry

Rx – barium swallow

Endoscopy

pH-Metry
Pre-operative Evaluation # 3

Ultrasonography

Scintigraphy

B.A.L.
Evaluation of gastroesophageal reflux events in children using multichannel intraluminal electrical impedance

American Journal of Medicine 8, 2003

**IMP** may become the new standard tool for detection of GER in infants and children.

The majority of gastroesophageal reflux (GER) episodes in infants and children are nonacidic (pH >4). However, extraesophageal symptoms (e.g., breathing irregularities, apnea, aspiration) apparently can be caused by both acidic (pH <4) and nonacidic reflux.
Which wrap/fundoplication?
Which wrap/fundoplication?

Three techniques seem to give comparable results, provided that they are performed by experts paediatric surgeons: Nissen’s, Toupet’s and Thal’s procedures.


Long-term outcome of laparoscopic Nissen, Toupet, and Thal antireflux procedures for neurologically normal children with gastroesophageal reflux disease

C. Esposito,¹ Ph. Montupet,² D. van Der Zee,³ A. Settimi,¹ A. Paye-Jaouen,² A. Centonze,¹ N. K. M. Bax³

¹ Chair of Pediatric Surgery, Magna Graecia University of Catanzaro and Naples, Via Tommaso Campanella 115, 88100 Catanzaro, Italy
² Pediatric Surgery Unit, CCBB Boulogne, 7 Rue du Laos, 75015, Paris, France
³ Chair of Pediatric Surgery, Willemina Children Hospital, Center University, P.O. Box 8509, AB Utrecht, 3508 Utrecht, the Netherlands

| Table 1. Long-term outcomes for 238 antireflux procedures performed in the three centers |
|----------------------------------------|----------------------|----------------------|----------------------|----------------------|
|                                       | Nissen (94 cases)    | Toupet (96 cases)    | Thal (48 cases)      | Total                |
| Intraoperative complications          | 5                    | 5                    | 2                    | 12                   |
|                                       | Nissen vs Toupet ($p = 0.990$, ns) | Nissen vs Thal ($p = 0.9093$, ns) | Toupet vs Thal ($p = 0.9179$, ns) |
| Postoperative complications           | 4                    | 3                    | 6                    | 13                   |
|                                       | Nissen vs Toupet ($p = 0.8873$, ns) | Nissen vs Thal ($p = 0.4098$, ns) | Toupet vs Thal ($p = 0.3469$, ns) |
| Dysphagia                             | 4                    | 2                    | 1                    | 7                    |
|                                       | Nissen vs Toupet ($p = 0.7841$, ns) | Nissen vs Thal ($p = 0.8281$, ns) | Toupet vs Thal ($p = 0.9982$, ns) |
| Redo surgery                          | 2                    | 2                    | 2                    | 6                    |
|                                       | Nissen vs Thal ($p = 0.8387$, ns) | Toupet vs Thal ($p = 0.8347$, ns) |

ns, statistically not significant

The authors consider the three procedures as extremely effective for the treatment of children with GERD, and they believe that the choice of one procedure over the other depends only on the surgeon’s experience. Parental satisfaction with laparoscopic treatment was very high in all the three series.
GERD TROCARS

- 5-mm 2nd operative
- 10-mm 30° Optic
- 3-mm hepatic retractor
- 5-mm 1st operative
- 3-mm GE junction
Technique: 3 Steps

Dissection

Hiatoplasty

Gastropexy
NISSEN
TOUPET 1
TOUPET # 2
NEUROLOGICALLY IMPAIRED CHILDREN (NIC)

- Cerebral palsy
- Wheel Chair
- Feeding Problems
- Associated Malformations
Almost 30-50% of the indications for surgery in children are represented by children with neurological impairment, whose management is extremely difficult and represents a true challenge for the surgeon.
Concerning neurologically impaired children (NIC) with GERD, there is now strong debate between paediatric surgeons as to whether it is preferable, to perform a jejunostomy or a gastrostomy alone, or an additional antireflux procedure, considering these patients’ limited life expectancy.
NIC

- ASSOCIATED MALFORMATIONS
- MALNUTRITION
- RESPIRATORY PROBLEMS
- GERD
- FEEDING PROBLEMS
NIC with GERD

FULL RECOVERY

?  QUALITY OF LIFE IMPROVEMENT
MORTALITY NIC

- High as 30-40%
- Few are related to GERD
- Mostly due to associated malformations

Table 6. Causes of Mortality

<table>
<thead>
<tr>
<th>GJ Group</th>
<th>FG Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Congenital heart disease</td>
<td>Seizures</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Central nervous system tumor</td>
<td>Bleeding post-otolaryngology surgery</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Encephalopathy</td>
<td>Complications post-orthopedic surgery</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Multiple anomalies</td>
<td>Line sepsis</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Aspiration pneumonia*</td>
<td>Tracheomalacia</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
</tbody>
</table>

*GER-related mortality.

NIC  with GERD

FULL RECOVERY

?  QUALITY OF LIFE IMPROVEMENT

?  QUALITY OF LIFE IMPROVEMENT
FEEDING PROBLEMS and MALNUTRITION
FEEDING TUBES

• Stamm’s gastrostomy
• PEG
• LAG
CONCLUSIONS

• It is fundamental to separate the results of surgical treatment of GERD in NN from
CONCLUSIONS # 1

- Neurologically Normal children > 95%
- Accurate pre-operative work-up
- Hiatoplasty: YES
- Section SGV: Not necessary
- Gastropexy: YES
- **NISSEN = TOUPET = THAL**
- NIC: ?? ?? ??