Intersphinteric resection for rectal cancer: role in fecal continence and Quality of Life

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Mariano Cesare Giglio, Marcello Persico, Gennaro Quarto, Giacomo Benassai, Gaetano Luglio, Rachele Tarquini, Valerio Celentano, Viviana Sollazzo, Luigi Bucci

Dipartimento di Chirurgia Generale, Oncologica, Geriatrica e delle Tecnologie Avanzate, Università degli Studi di Napoli "Federico II", Napoli, Italia

Intersphincteric resection for rectal cancer:role in fecal continence and Quality of Life

AIM: *Aim of this study is to evaluate the presence of fecal incontince and its impact on life-quality after intersphincteric resection for low rectal cancer.*
MATERIAL AND METHODS: *Twentyeight patients (18 males and 10 female) underwent intersphincteric resection for low rectal cancer between 2006 and 2008. The presence of fecal incontinence was evaluated by Wexner score pre-operatory and 3, 6 and 12 months after ileostomy closure; Quality of Life was evaluated by Fecal Incontinence Quality Of Life (FIQL) score.*
RESULTS: *Wexner score was significatively (p<0.01) higher in the post-operative period (14,07 ± 1.94, 13.36 ± 2.3 and 12.29 ± 2.3 at 3.6 and 12 months) than the pre-operative one (0.72 ± 0.71). Post-operative life-quality specifically related to fecal incontince was worse than in the pre-operative period (FIQL: 10.84 ± 2.52 at 12 months vs 16 pre-operative period).*
DISCUSSION: *Wexner score results show a significative worsening in fecal incontinence after intersphincteric resection, even if this condition seems to improve during the follow-up. These results agree with literature.*
CONCLUSIONS: *Intersphincteric resection for low rectal cancer is associated, in the short term (12 months), with a significative state of fecal incontinence. This state has a significative impact on life-quality. However a longer follow-up probably might show an improvement in life-quality parameters.*

KEY WORDS: Intersphincteric resection incontinence

Introduction

The main role of surgery in rectal cancer is local-disease control. On the other hand, once you are able to achieve a proper oncological resection, the possibility to restore intestinal continuity, thus preserving fecal continence, is a key factor in order to insure a better quality of life [1-3]. In the last years, intersphincteric resection [4] has been proposed as a possible surgical option instead of APR resection. This technique is performed through the total or partial resection of the internal anal sphincter, following the intersphincteric space in order to get a good distal margin and preserve intestinal continuity. Some of the first studies [5,6] have demonstrated the safety of this novel technique in terms of oncological results, so that oncological outcomes coming from large series show a 9.5% in overall local recurrence rate while the 5-years overall survival rate is 81.5% [7]. Being said, good oncological outcomes can be achieved when proper selection criteria are adopted:

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Correspondence to: Mariano Cesare Giglio, Dipartimento di Chirurgia Generale, Oncologica, Geriatrica e delle Tecnologie Avanzate, Università degli Studi di Napoli "Federico II", Napoli, Italia (E-mail: mariano.giglio@hotmail.it)

– No external anal sphincter involvement;
– No levator plane involvement;
– 2 cm free distal margin;
– Low tumor grading (G1,G2).

All oncological parameters evaluated from these studies show similar results in terms of local failure and overall survival than those achieved with abominoperineal resection[8], so that intersphincteric resection should be considered a viable alternative to Miles operation. On the other hand, this kind of operation might be impaired by a poor postoperative function in terms of fecal continence, specially when a significant portion of sphincter is resected. Aim of this study is to evaluate postoperative fecal continence and quality of life in a group of patients who underwent fecal incontinence for rectal cancer.

Materials and Methods

28 patients (10 female) were enrolled in the study and underwent intersphincteric resection from May 2006 to July 2008. Mean age was 58,2 (range 40-74). Preoperative staging was achieved through clinical examination, rigid proctosigmoidoscopy, biopsy, CT-scan. Local staging was also assesed through endorectal ultrasound or MRI. Continence was assessed through the Wexner Continence Score. Inclusion criteria for the operation were:
– no invasion of external anal sphincter of levator plane;
– good preoperative continence and sphincter function.

Mean distal margin (from anal verge) was 3.8 cm (range 2-5). Sixteen patients were preoperatively staged as TNM Stage II (T3,N0) and six patients were Stage III (T2, N1 or T3,N1).

All patients underwent preoperatively radiochemotherapy. RCT protocol was the standard long-term one (45 Gy in five days a week for five weeks plus a final boost for a total 50.4 Gy dose). Radiotherapy treatment was combined with 5-FU continuous infusion (250 mg/m^2/die). Surgical treatment was performed at least 6 weeks after the completion of radiotherapy.

Each patient was evaluated for fecal function through the Wexner Continence Score questionnaire [9]. This score is a clinical tool to assess the severity of fecal incontinence. Five parameters are considered: solid stool incontinence, liquid stool incontinence, gas incontinence, use of pads, modifications in lifestyle. Each of these parameter is scored on a frequency base with a 0 to 4 score (0= event never happens; 1= frequency of the event less than 1/months; 2= more than 1/months but less than 1/week; 3: more than 1/week but less than 1/day; 4= more than 1/day). Total score is obtained by the sum of the scores for each single parameter. A score > 9 usually represents a significant impairement in quality of life.

Quality of life was investigated through a specific questionnaire for fecal continence, the FIQL (Fecal Incontinence Quality of Life) [11]. This clinical questionnaire is based on 29 questions that explore for main domains: lifestyle (10 questions); coping/behaviour (9 questions); depression (7 questions), embarrassment (3 questions). Each of these questions is score with a 4 to 1 score, where 4 stands for the better quality of life and 1 for the worst condition perceived. The italian validated version of the questionnaire was used [12].

Wexner score has been assessed preoperatively and 3,6 and 12 months after the ileostomy closure. FIQL questionnaire was administered preoperatively and 12 months after the ilestomy closure.

Results are showed as mean and standard deviation. Data analysis was achieved through the t-student test for parired sample, using the SPSS 17.0 software.

Results

Preoperative Wexner score was 0.72 ± 0.71 (range 0-2); Wexner score at 3,6 and 12 months after ileostomy closure was 14.07 ± 1.94, 13.36 ± 2.3, 12.29 ± 2.3 (range 2-20). Postoperative scores are significantly higher than the preoperative ones ($p<0.01$), emphasizing a clear worsening of fecal function after surgery. Anyway, 12 months after surgery a significant improvement compared with results at 3 and 6 months ($p<0.01$) has been noted.

With regard to quality of life evaluated with FIQL, preoperative scores showed a complete good "fecal-related" quality of life and this finding could be easily predicted as one of the inclusion criteria was a normal preoperative fecal function. Quality of life 12 months after surgery was significantly worsened ($p<0.05$) considering the total FIQL score (10.84 ± 2.52 vs 16). Anyway, the impact of postoperative function seems to affect differenly each domain, as we found:
– lifestyle shows a lower score than the preoperative one (2.61 vs 4) with the same statistically significant level as the total score ($p<0.05$);
– coping/behaviour domain shows the biggest impact of postoperative incontinence, with the lowest score (2.25 ± 0.6 vs 4) ($p<0.01$);
– depression/self perception domain showed a 3.04 ± 0.6 score vs 4 ($p<0.05$);
– embarassment domain showed a 2.94 ± 1.04 score vs 4 ($p=0.05$).

Discussion

Surgical treatment of rectal cancer requires some considerations both for oncological outcomes than for postoperative life-quality. Being said, sphincter-preserving surgery might be now considered a new endpoint [13].

Intersphincteric resection is a novel technique, whose oncological safety has widely been described in literature [5-7]. Anyway, specially in those cases in which you might be obliged to resect a big amount of internal anal sphinc-

ter, postoperative fecal incontinence and a poor quality of life is an important reality to face.
Functional results and fecal continence scores obtained in the present study are in agreement with most of results from other series from literature [14,15], when the same surgical technique was used (straight anastomosis). By the way, the finding of a significant improvement of continence scores 12 months after surgery, might lead to even better results at a longer follow-up. This might also partially explain the better results achieved with the fashioning of a colonic j-pouch [14,15], as the straigh anastomosis might require a longer period to achieve a full functional adaptation. With regard to life-quality after intersphincteric resection, two studies have investigated on it: Park et al. [16], used the FIQL to compare quality of life in patients after colonic j-pouch and straight anastomosis, with the first group showing the better results. Bretagnol et al. [17], compared quality of life (using FIQL and SF36) in patients after intersphincteric resection and coloanal anastomosis, with the better results achieved in this latter group. With regard to the latter study, one might argue that coloanal anastomosis actually do not represent a technical alternative to intersphincteric resection, whose unique alternative is adominal perineal resection; the comparison should thus be performed investigating on quality of life on people after APR.
Our analysis has also demonstrated how fecal incontinence leads to a significant impairement in quality of life, particularly with regard to lifestyle and behaviour but not as much for the depression domain which is not very far from the preoperative status: a possible consideration is also that tolerance threshold for fecal function is in some way reduced by the depression due to the cancer diagnosis.

Conclusion

Intersphincteric resection for rectal cancer is an extreme sphincter-preserving operation that is impaired by a high rate of fecal incontinence 12 months after surgery. This poor fecal function significantly impairs quality of life, but an improvement in fecal incontinence score has been noted in the follow-up period. A longer follow-up might lead to the observation of a better function and quality of life, thus larger studies are advocated.

Riassunto

La *resezione intersfinterica* è una valida opzione chirurgica conservativa nei pazienti altrimenti candidati all'amputazione addominoperinale secondo Miles. La tecnica prevede l'asportazione totale o parziale dello sfintere interno al fine di garantire un adeguato margine distale e di conservare allo stesso tempo la continuità intestinale. La validità in termini oncologici è stata dimostrata da numerosi studi, che hanno evidenziato come sia assolutamente paragonabile all'amputazione addominoperineale sec. Miles. Tuttavia persistono perplessità circa l'aspetto funzionale in quanto la tecnica prevede l'asportazione di una porzione variabile dello sfintere interno.
Scopo del nostro studio è stato valutare l'impatto della tecnica sull'incontinenza fecale e sulla qualità di vita. Lo studio è stato condotto su 28 pazienti (18 maschi e 10 femmine) sottoposti a resezione intersfinterica per cancro del retto basso. Tutti i pazienti sono stati sottoposti a radiochemioterapia neoadiuvante.
Il grado di incontinenza è stato valutato nel pre-operatorio e nel postoperatorio (3,6 e 12 mesi dopo la chiusura dell'ileostomia di protezione) mediante il Wexner Score; la valutazione della qualità di vita è stata condotta mediante il Fecal Incontinence Quality of Life Score nel preoperatorio e 12 mesi dopo la chiusura dell'ileostomia di protezione.
Il *Wexner score* riscontrato nel *pre-operatorio* è stato 0,72 ± 0,71 range [0-2], mentre a 3, 6 e 12 mesi dopo la chiusura dell'ileostomia temporanea era rispettivamente di 14,07 ± 1,94, 13,36 ± 2,3 e di 12,29 ± 2,3 range [2-20]. I valori riscontrati nel post-operatorio sono tutti significativamente maggiori di quelli del preoperatorio ($p < 0.01$), denotando quindi un chiaro peggioramento della continenza associato all'intervento; tuttavia a 12 mesi è già possibile osservare un significativo miglioramento ($p < 0.01$) rispetto a 3 e 6 mesi dopo la chiusura dell'ileostomia.
La qualità di vita a 12 mesi dalla chiusura dell'ileostomia temporanea si presenta inoltre significativamente peggiorata ($p < 0.05$) se si fa riferimento allo score totale del FIQL (10,84 ± 2,52 a 12 mesi vs 16 del pre-operatorio). Si può quindi concludere che l'intervento di resezione intersfinterica per cancro del retto, si associa, nel breve termine (12 mesi), ad uno stato di incontinenza fecale. Questa è tale da determinare una significativa diminuzione della qualità di vita.
Tuttavia già nel periodo di osservazione è stato notato un significativo miglioramento della funzionalità (a 12 mesi rispetto a 3-6 mesi): la valutazione dell'incontinenza residua al termine di un periodo di follow-up più lungo potrebbe verosimilmente mostrare risultati funzionali migliori.

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