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The challenges of managing and following-up a case of short bowel in eastern europe

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ABSTRACT

INTRODUCTION: This article reflects on the plight of patients with short bowel syndrome (SBS) in developing countries. SBS is life threatening, rare, complex and often not considered a priority by healthcare planners in the developing countries because of the high cost of treatment. Data was collected and analyzed from 3 different hospitals in two different countries (Romania and Austria) from November 2013 to February 2016

CASE PRESENTATION: The patient had an emergency surgery for volvulus as a result of an extensive ischemic necrosis, with just 80 cm of the bowel left and no ileocecal valve after enterectomy. Despite intensive care and surgeries for anastomotic joint ischemic necrosis and intestinal adhesion with just 70 cm of the intestine left after primary anastomosis, the patient remained in a catabolic state (metabolic acidosis, severe malabsorption and loss of nutrients, water and electrolytes through diarrhea) and was transferred overseas where two more surgeries (intestinal stomas) and good intensive care helped to achieve enteral autonomy at the optimal time.

DISCUSSION: This immune-deficient patient was exposed to various types of bacteria (*Klebsiella pneumoniae*, *Pseudomonas aeruginosa*). Two years after surgery an acute enterocolitis with salmonella infection and resultant intestinal failure treated in patient's country of origin failed to achieve enteral nutrition warranting a second overseas transfer.

CONCLUSION: The lack of sufficient mucosal surface followed by long time intestinal adaptation process is crucial in determining bowel functional capacity. Long time hospital stay and cost was reduced through a parental home healthcare management training scheme.

1. Introduction

We followed an individual case of short bowel syndrome (SBS) and tried to illustrate what children and parents had to go through in a developing country with a less financed healthcare system. These cases are rare, complex and often not considered a priority by healthcare planners in government. Medical records were gathered from 3 different hospitals in 2 different countries and this case was followed up from November 2013 to February 2016. Patient's weight and height were regularly monitored, while hypercaloric and hyperproteic diet were structured to improve nourishment and to gain weight. The patient initially was placed on total parenteral nutrition (TPN), then followed by parenteral nutrition (PN) combined with enteral feeding, and later progressed to just enteral feeding [1]. The complex and complicated nature of this case after enterectomy coupled with life threatening enterocolitis with salmonella infection 2 years after surgery were all part of the problems we encountered. Most of these patients die because of inadequate monitoring system due to the lack of healthcare funding. Parents had to seek extra medical help for their child from the West. In order to reduce hospital stay and cost, the parents were involved and trained on how to continue patient's healthcare man-

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Table 1
Laboratory test- short bowel syndrome (SBS).

CBC	Post-operation I	Pre-operation II	Post-operation III	1-day	2-day	3-day	8-day	12-day	15-day	19-day	21-day	Normal values
WBC	$25{,}34 \times 10^3$	$30{,}12 \times 10^3$	19,48	12,85	10,23	15,23	17,21	–	–	–	–	3.4–9.5 × 10(9)/L
RBC	$3{,}25 \times 10^6$	$3{,}56 \times 10^6$	$3{,}48 \times 10^6$		3,38	3,78	3,95	–	10^{12}	–	–	4.20–5.10 × 10(12)/L
HGB	10,8	10,1	10,5	10,3	9,8	11,5	11,1	11,4	9,5	9,7	11,4	12.0–14.0 g/dL
HCT	32,4	30,9	31,5	30,9	28,6	33,5	32,7	33,1	26,4	–	33,1	35.8–42.4%
PLT	6,89,000	9,00,000	6,57,000	6,23,000	524,000	5,38,000	5,40,000	–	–	–	–	150–450 × 10(9)/L
Neut%	91,2	83,9	91,7	84,1	84,2	–	44,4	–	–	–	–	1.50–8.50 × 10(9)/L
Lymph%	4,2	4,9	4,3	4,5	4,3	–	57	62	–	–	–	1.50–6.50 × 10(9)/L
Mono%	1,9	1,8	1,6	1,5	1,4	–	2,6	–	–	–	–	0.00–0.80 × 10(9)/L
Eo%	0,3	0,2	0,1	0,1	0,3	–	0,1	–	–	–	–	0.00–0.65 × 10(9)/L
Cl	113	112	112	114	113	–	111	112	–	–	112	98–106 mmol/L
ESR	90	100	80	84	80	75	100	70	65	40	30	3 to 13 mm/h
Creatinine	210	190	141	1,2	<0,10	8	6	4	N	1,21	<0,10	0.0–0.7 mg/dL
Uric acid	2,0	2,2	2,1	2,0	2,0	2,2	2,1	2,2	N	2,3	2,2	2.4–6.0 mg/dL
Urea	9.0	10,45	12,33	11,4	10.9	9,3	9,77	8,3	N	9.65	7,49	7 to 20 mg/dL (2.5–7.1 mmol/L)
Amylase	–	–	–	–	–	293	196	–	78	58	54	0–137 U/L
Lipase	–	–	–	–	–	156	83	–	–	–	–	12–70 U/L
ALT	45	58	108	99	N	200	42	58	41	60	58	7 to 56 units per liter
AST	36	39	43	41	N	52	N		N	56	45	10 to 40 units per liter
Blood sugar	92	89	130	110	116	120	123	98	134	127	90	100–125 mg/dL
Ferritin	–	58	314	–	–	–	–	58	27	–	58	11 to 307 nanograms per milliliter
Transferrin saturation	–	15	–	–	–	–	–	15	12	–	15	15%–45%
GGT	98	87	79	84	N	80	112	109	67	60	52–	0–45 U/L
PCR	58	65	1,83,83	150	86,6	120	N	3	3,2	0,5	2,4	<15 IU/mL
PCT	0,74	0,32	9,43	4,77	–	–	–	–	–	–	–	<0.15 ng/mL
Serum protein	54	60	22	4,5	1,66	N	N	6	2,3	2,5	1,9	64–83 g per liter (g/L)
Sideremia	24	53	1,3	30	29	65	32	40	44	42	56	60–180 microg/dl
Cholesterol	–	–	–	–	15	–	N	–	–	–	–	<200 mg/dl
Triglycerides	–	–	–	–	56	–	N	–	–	–	–	<150 mg/dl
Thyroid values	N	N	–	–	–	–	N	–	–	–	–	TSH = 0,4–4,5 TT4 = 50–160 FT4 = 10–24 FT3 = 4–8.3
Urine test	–	–		–		–	N	–	–	–	–	negative
Urine specific gravity	1013	1010	1010	–	1013	–	–	–	–	–	–	1.005–1.030
Leukocyte	–	–	+	–	20	–	–	–	–	–	–	negative
Ph	5,6	6	5	–	–	–	–	–	–	–	–	4.5–8
RBC (erythrocyte)	–	–	–	–	5280/microl	–	–	–	–	–	–	≤2 RBCs/hpf
Protein	–	–	–	–	+++	+	–	–	+	–	–	≤150 mg/d
Stool test	–	*Pseudomonas aeruginosa*	–	–	*Klebsiella pn.* +++ *Pseudomonas ae.*+	–	N	N		E.Coli+++ Klebsiella oxytoca+++ Enterococcus sp.+++	Salmonella	–
Calprotectin	–	–	–		–	–	<100	–	–	Negative	–	<50
Occult bleeding	–	–	–	–	–	–	–	+	–	+	–	Negative
Abdominal R-ray with barium	–	–	–	–	–	O short stoma area stenosis	No pneumoperitoneum No air fluid levels, intestinal dilatation (4,7 cm)→ SBS/volvulus	–	–	–	–	–