

Title: Postoperative nutrient absorption and deficiency risk in magnetic duodeno-ileostomy anastomosis for adult living with obesity: a retrospective study

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Abstract

Purpose: This study evaluated postoperative nutrient deficiencies following side-to-side magnetic duodeno-ileostomy (MAGDI) in adults living with obesity, with follow-up up to one year. It also explored the influence of magnet size, patient compliance, and prescription adherence.

Methods: A retrospective analysis was conducted on 41 patients (BMI ≥ 30 kg/m², with or without type 2 diabetes [HbA1c $\geq 6.5\%$]) who underwent MAGDI using 30 mm, 39 mm, or 50 mm magnets. Nutritional behavior was evaluated using a structured compliance score (good = I, moderate = II, poor = III). Demographic data, supplement prescriptions, and laboratory parameters were collected, and deficiencies were classified according to standardized clinical thresholds. Statistical analyses included Wilcoxon signed-rank and chi-square tests.

Results: Mean excess weight loss reached 25.05 ± 6.92 kg at one year across all magnet sizes, increasing up to 63.12 ± 16.11 kg in patients with 50 mm magnets. Selenium and zinc deficiencies persisted throughout follow-up, with the highest incidence observed at three months, alongside total protein deficiency (36.6%). This peak coincided with the highest rate of supplementation prescriptions, followed by a reduction in most deficiencies after 6 months. Deficiencies were significantly more frequent in patients with moderate or poor compliance (II-III), with a significant decline in good compliance over time ($\chi^2 = 6.05$, $p = 0.0139$). Moderate and Severe Deficiencies were rare.

Conclusions: Most deficiencies were mild, improved over time, and were strongly influenced by patient adherence, underscoring the importance of targeted supplementation and close nutritional monitoring.

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