



Fall 2000

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Bone Disease from Gastric B

by Edward Eaton Mason MD, Ph.D.

Ghose recently described a patient with severe and debilitated osteoporosis 37 years after a Polya partial gastrectomy for treatment of gastric cancer. In 1963, 38 years it was noted that she had severe fixed dorsal kyphosis and was now puny, with a body weight of 33 kg and BMI of 18 kg/m². She "appeared to be 80 years." Her BMI was 16. She had a parathyroid hormone level was 240 pg/ml (normal 10-60 pg/ml) which supported the diagnosis of secondary hyperparathyroidism. The authors of the papers found by searching the medical literature for osteoporosis after stomach surgery. The search was made in response to a patient whose Roux-en-Y gastric bypass (RGB) had just been reversed after severe osteoporosis and severe iron deficiency anemia. Gastric resection is seldom performed today for treatment of gastric cancer. However, gastric bypass provides the same exclusion of the proximal jejunum from the digestive tract, creating malabsorption of calcium and iron.

Metabolic bone disease has been a concern in the treatment of patients after malabsorption operations since the introduction of intestinal bypass. et al found bone biopsy evidence of osteomalacia 46 years after Roux-en-Y intestinal bypass but subsequent biopsies revealed a retracted spine. et al observed a greater reduction in bone mineral content in postmenopausal women 15 years after intestinal bypass.³ Scopinaro⁴ found osteoporosis after biliopancreatic diversion that were similar to those observed after gastric resection.⁵ Bone pain attributed to demineralization of bone in patients following BPD, usually between the second and third year after surgery, and a prompt response to the administration of calcium and vitamin D. A clinical practice plan provides life-long follow-up, monitoring of bone density, and treatment. He reported bone disease was a rare complication of BPD.

years.

There is extensive literature about bone changes after ulcer and cancer.^{6,7} Crowley, Seay and Mullen studied men, six to nine years after gastric bypass and found inadequate vitamin D and 54% inadequate calcium.⁸ alkaline phosphatase and only one had serum calcium. However, fourteen had lost *height*. Only one of the 41 patients four were taking calcium supplements. There were 26 with musculoskeletal symptoms, for which two had been highly marked osteoporosis with a vertebral compression fracture on radiographic examination. Neither parathyroid hormone measurements were made.

Osteoporosis is difficult to diagnose during early stages, susceptible to preventive treatment. Secondary hyperparathyroidism when there is inadequate absorption of calcium and calcium presence of a persistent elevation of serum parathyroid hormone calcium may be normal because the parathyroid glands regard to controlling serum calcium, but bone type all usually elevated. Perhaps we have been asking the wrong question, et al, describe two women who developed metabolic bone disease after gastric bypass and had elevated parathyroid hormone.⁹ who had undergone gastric bypass were studied and parathyroid hormone levels. Urinary calcium levels were

There is much written about prevention of osteoporosis in the lay literature. To the extent that bypass operations are used for obesity there is likely to be a further increase in frequency of osteoporosis following gastric bypass will appear at an earlier age in men. The diagnosis of osteoporosis probably occurs in men. The diagnosis in elderly has usually been made too late, when kyphosis, pathologic fractures occur. Serum calcium is maintained and response of the parathyroid glands to lowering serum calcium. Measurement of parathyroid hormone and alkaline phosphatase should detect secondary hyperparathyroidism at an early stage, an opportunity to prevent debilitating changes that can occur. The frequency of secondary hyperparathyroidism after bypass are occasional patients where the diagnosis is made late in the disease and who, in retrospect, might have derived benefit from treatment. We do not know if such treatment would have prevented patients to prevent osteoporosis. There is always the possibility of duodenal function if other treatment is not effective.

Our society recognizes some diseases of epidemic proportions

there is an effective treatment. Obesity was not considered until recently. Arnold Kremen and his mentor Richard Varco described intestinal bypass in 1954.¹⁰ The widow's hump was a consequence of aging until recently. Loss of skeletal mass is a consequence of severe obesity. There is no way of restoring a collapsed spine. There are new ways of preventing metabolic bone disease early enough. Therein rests the challenge for obesity surgery: careful lifetime follow-up in order to determine the onset and to prevent irreversible and debilitating skeletal changes. There is information about the potential effects of bypass operation before they choose operative treatment.¹¹ If the patient is informed, they can ask physicians, who see them and are less likely to perform surgery, to perform analyses of parathormone, alkaline phosphatase, and other studies according to the findings of the screening tests.

We can decrease the number of damaged knees and hips with early control of excessive weight. However, this should not prevent osteomalacia and osteoporosis. The most unfortunate patients require replacement of weight bearing joints because they were not effectively treated early enough and who then develop severe arthritis. A bypass operation for obesity. For one patient of mine who used a wheel chair before gastric bypass, there was replacement of the hip after successful weight reduction. Despite a radiologic diagnosis of osteoporosis she now has recurrent, severe obesity and secondary osteoporosis. Surgical treatment of morbid obesity involves a lifetime of follow-up. Sufficient information for our patients to make an informed choice of options for surgical treatment of obesity. The more weight reduction problems, the better the available information for our patients.

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Frustration with Missing Weight Information

by Kathleen E. Renquist

On occasion, patient contacts are found in the data without weight information. This is disconcerting when we are measuring changes in patient weight due to surgery for obesity. Missing weight information is also a source of frustration for the person doing data entry. The program requires data entry for all IBSR primary fields. The program will not calculate weight loss over time for this patient if there is an increase in missing weight at follow-up, future program will be more strict with regard to entry of this important data element. The program points state what happens when a weight or height is missing.

- *Weight should always be in initial visit and primary visit.* If a patient's information is not included in aggregate analyses, there is no weight or initial visit height. In addition, the program can not calculate weight loss over time for this patient.
- *Height should always be in initial visit.* Initial visit height is required to calculate percent ideal weight and body mass index. The program uses a default value used by the program for primary visit, readmissions, reoperations, and subsequent primary visit.
- *Weight is needed for readmissions, subsequent reoperations.* These records are excluded from aggregate analyses when weight is missing. If a patient has a reoperation, readmission or subsequent primary visit, weight is needed.

entered for this record may be lost to the analyses.

- *Weight at follow-up should be complete.* 1) If a value is missing in the patient record or on an IBSR data entry, a person responsible for completing this information should be notified to obtain the missing data. 2) Creating a follow-up record for a patient whose purpose of recording when a patient has become lost to follow-up is not recommended. Enter the lost to follow-up date in the 'additional information' of a previous follow-up record with only a date, as it can be used to calculate follow-up rates as well.
- *Height should be recorded at office follow-up.* Height should be recorded in the written patient record for a follow-up visit, initial visit height or a height recorded for a previous visit. Height is needed to calculate BMI, percent ideal weight, etc.
- *Weight and height are often missing at death.* Data is often missing 1-2 years after the primary operation and the patient is lost to follow-up, thus weight may be unobtainable.

The International Bariatric Surgery Registry Monitoring Committee (IBSR MAC), 2000-2001

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FALL 2000 IBSR NEWSLETTER Volume 15, number 3

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