Two minutes with diabetes the problem
"Why am I so swollen?"

The case
Ms. Lisa is a 21 years old student with diabetes of 15 years duration. During a stormy adolescent period, she experienced several episodes of ketoacidosis. Now she has the residuals of vasoproliferative retinopathy, which followed successful treatment by bilateral laser photocoagulation. Her eye grounds show fibroglyosis: her visual acuity was good. Her blood pressure is normal. She retains no fluid under ordinary circumstances but does show a trace to 1 + albumin in the urine. Her serum creatinine is normal.

Recently Ms. Lisa developed ketoacidosis following a bout of nausea, vomiting and diarrhoea. Her acidosis was corrected and her diabetes re-regulated by usual, low dose insulin regimen. Four days later she noted swelling of her legs. One week later she had gained 12 pounds. There was pitting oedema of both legs, a swollen abdomen with increase in abdominal girth, and tenderness of the liver. Both periorbital areas were puffy. She wanted to know why she was so swollen.

Discussion
Her kidney function was unchanged with only small amount of albumin in the urine. The serum creatinine remained normal; the serum proteins were normal.

The timing and nature of her problem suggests the diagnosis of "Insulin oedema." Since insulin has been available, catabolic diabetics who are treated vigorously with it have noted significant weight gain even before good control of hyperglycaemia has been established. Such patients also report a decrease in urine volume Studies have suggested that insulin has an antinatriuretic effect. Insulin oedema is identified in insulin dependent diabetic patients who have been in poor metabolic control for prolonged period, or who are recovering from ketoacidosis. A rapid rise in weight is followed by extremity oedema and occasionally is associated with ascitis and hepatomegaly. These patients have increased glycogen stores in the liver and retained water. Insulin oedema usually lasts six to eight weeks and is treated with salt restriction, diuretics and reassurance; it is self limiting in nature. Ms. Lisa was given Frusemide and salt restriction. She lost 16 pounds over the ensuing four weeks. Eight weeks after ketoacidosis she weighted 121 pounds - her usual weight.

Points to remember
When a patient has severe oedema following treatment for acute decompensation of diabetes, consider "Insulin oedema", a self- limiting disorder.