Embedded Continuous glucose monitor sensor wire- Case Report.

Authors: Adeniyi F.S(1),
Akinlua J(2), Rajput S(2)

Introduction

In children with Type 1 diabetes mellitus, Embedment of sensor wire is a rare Complication

Methodology:

This a retrospective case report of 5year old girl. Information for the report was retrieved from medical records after obtaining informed consent from the parents.

Case Report:

A 5year old girl known to have T1DM from the age of 3years 11months, she is on daily multi-dose insulin regime and always administer insulin on her thigh. She was commenced on continuous glucose monitoring 2 months after her diagnosis due to frequent hypoglycaemia unawareness and parental anxiety. Mother has been unable to return to work after diagnosis due to fear of hypoglycaemia and the insertion of the CGM was able to ease her return to work. She presented after 1year 2month of being on the CGM with a 2-days history of a lump under the skin of her anterior abdominal wall, a 2x2 cm firm mass, non-erythematous, non-tender on the skin overlying the right upper quadrant, medially just below the rib cage. All other systemic examination was unremarkable. The differential diagnoses were lipo-dystrophy associated with single site insulin administration, enlarged lymph nodes, and embedded CGM sensor wire. She had abdominal X-ray [Picture 1] which was reported as “ a radio-opaque wire present in the upper abdomen which measures approximately 22mm described as a solitary foreign body” and ultrasound scan of the lump [Picture 2] which was reported as “ a 1.2 cm x 0.3 cm x 1.2 cm focal, iso-echoic area over the midline of the anterior abdominal wall. Centrally, this contains a linear, echo-genic, tortuous structure which is contained within the subcutaneous layer and has no internal vascularity. Appearances are in keeping with a foreign body with surrounding granulomatous changes”

At this point a diagnosis of embedded sensor wire was confirmed. She was discussed with surgeon due to parental anxiety who reviewed her with the images and offered surgical removal of the sensor wire. She was discharged following a day case removal of the sensor wire with no follow up arranged.

Discussion

Continuous glucose monitoring sensor wire break and embedment under the skin is rare complication of continuous glucose monitoring, the most common cutaneous complications were wear-related erythema, itching, and indurations. Skin irritations were the most common cause of CGM/FGM discontinuation, most users experienced less pain or discomfort with CGM/FGM than capillary blood glucose testing. History of recent use of the site of lump is very valuable information and also to exclude other lumps in the body that may be in-keeping with lipo-dystrophy associated with single site insulin injection. Examination to exclude other differentials such as lipoma and tumours will warrant lymphatic system examination to rule out spleen and liver enlargement. The preferred imaging of choice for imbedded continuous glucose monitoring sensor is the ultrasound. Our patient had both Xray of the abdomen and ultrasound of the lump which both confirmed that the sensor was imbedded under the skin.The definitive management of embedded CGM sensor is often conservative. Surgical retrieval of the sensor is recommended if suspicious of infection or portion of the sensor that is visible above the skin. In our case it was decided to remove the sensor wire surgically because of parental anxiety and choice. It is worth mentioning a rare case report in the literature where the sensor migrated into the peritoneum. However in this case there was associated redness and painful lump which necessitated further investigation and prompt surgical intervention.

Conclusion

Continuous glucose monitoring sensor break and imbedded under the skin is a rare condition and management is often conservative. It worth being aware of the indications for investigation and possible surgical intervention such as overlie infection, visible part of the sensor above the skin, painful lump or patient’s choice.

References:

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