

Short Communication

Femoral herniorrhaphy and its affect on fibrinogen levels

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The study consists of 10 patients with features suggestive of femoral hernia who had herniorrhaphy in our Hospital. The information collected include the age, sex, and occupation. Many years ago, femoral hernia was not common in Nigerian. This must have been due to the fact that the cases were under reported and most patients, who had femoral hernia, took native drugs and hoped for the best until it becomes complicated. The fibrinogen concentration of the control was 2.21 (0.12) g/l. The fibrinogen concentration before operation was 2.12 (0.9) g/l compare with the control level of 2.21 (0.12) g/l. Fibrinogen increased significantly during operation ($p < 0.001$) and decreased ($p < 0.001$) after operation. Therefore the increase in fibrinogen level after femoral herniorrhaphy may predispose to the development of post-operative thrombo embolic complications. The measures for the prevention of thrombo embolic complications such as early mobilization should therefore be encouraged in such patients.

Key words: Femoral hernia, herniorrhaphy, our hospital, Nigeria, fibrinogen, thromboembolic complications.

INTRODUCTION

According to some report, femoral hernia constitutes 2 - 5% of all hernia and it is more common in Europe and North America than in Black Africa (Darko, 2000). From our experience, our patients usually present in the hospital when they develop the complications of femoral hernia. In developed countries the patients present in the hospital when they notice any abnormal swelling, while here they present only as a result of the discomfort e.g. pain and vomiting due to the complication of the hernia. Therefore, femoral hernia is far more common here than it is being reported in the literature. External hernia is a very common surgical problem in Nigeria (Adesunkanmi et al., 1999; Alade, 1976; Awojobi et al., 1987). The surgery could be carried out under general anaesthesia, spinal anaesthesia or by locally infiltrating local anaesthetic agents like lidocaine. Complications of femoral

hernia include irreducibility, strangulation and intestinal obstruction. In Nigeria most patients present with the complications of hernia (Alade, 1976; Awojobi et al., 1987; Duvie, 1984; Nwankwo and Katchy, 2005).

In developed countries a good number of the cases present without any complication. In Nigeria hernia is still a very common cause of intestinal obstruction with the attending morbidity and mortality. In view of the above, virtually every patient with femoral hernia is strongly persuaded to have herniorrhaphy. Studies on changes in the blood amongst our patients for femoral herniorrhaphy are therefore imperative.

It is a well-established fact that measurable changes in plasma fibrinogen level occur during and after surgery (Ohanaka, 2002; Onuminya, 2005). Fibrinogen plays a very important role in intravascular thrombosis. It is converted by thrombin to fibrin whose role in intravascular thrombosis is quite clear. Many authors have reported an increase in fibrinogen activity in the post postoperative period (Thanni, 2000; Okonkwo and Ngene, 2004).

The pattern and incidence of hypercoagulable state

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during and after femoral herniorrhaphy in Nigerians using spinal anaesthesia has not been studied. We therefore decided to study the changes in plasma fibrinogen concentration in Nigerians undergoing femoral herniorrhaphy.

MATERIALS AND METHODS

Subjects

The study consists of 10 patients with features suggestive of femoral hernia in our hospital. The information collected included the age, sex and occupation. The following are exclusion criteria; patients with immuno-compromised condition or other haematological problems, diabetics, patients on steroids and patients with other major surgical or medical problems like cancer and hypertension. The age range of the patients is between 20 – 80 years. 10 normal patients without femoral hernia of the same age range were included in the study as controls for comparison.

Methods

Blood was collected from an arm vein using minimum occlusion. 4.5 ml of blood was collected and mixed with 0.5 ml of 3.8% trisodium citrate solution for plasma fibrinogen estimation. The blood was centrifuged at 2,500 g in a closed tube for 10 min at room temperature and the fibrinogen estimated within three hours of venepuncture. The fibrinogen concentration was estimated by the method of Ingram (Onuba, 1987) and the haematocrit was determined by microhaematocrit as described by Dacie and Lewis (Osime and Elusoji, 2006). Blood was collected a day before the operation, at induction, during and immediately after the operation. The patients had the surgery with spinal anaesthesia.

Statistical analysis

Average values are expressed as mean (SEM). The student's t-test was used for significance determination which was set at $P \leq 0.05$.

RESULTS AND DISCUSSION

The fibrinogen concentration of the control was 2.21 (0.12) g/l. Figure 1 shows the changes in plasma fibrinogen concentration before, during and after operation over a 3 day period. The fibrinogen concentration before operation was 2.12 (0.9) g/l. Fibrinogen increased significantly during operation ($p < 0.001$) and decreased ($p < 0.001$) after operation.

In this study, most of patients were females. This agrees with the finding in the literature (Darko, 2000). The reason given for this is the wider female pelvis. This gives rise to wider femoral ring through which the herniation occurs. Table 1 shows that most of the patients were above the age of 50 years. This must be due to factors such as obesity, muscle weakness and recurrent pregnancies that occur with age. This study shows that there is no significant difference in fibrinogen level between the patients with femoral hernia and the normal control. The patients who had femoral hernia in

Table 1. Age and sex distribution of patients with femoral hernia.

Year	Male	Female	%	Total
0-10				
>10-20	0	0	0	
>20-30	0	0	0	
>30-40	0	0	0	
>40-50	0	1	1	10
> 50	1	8	9	90.0
Total	1	9	10	100
Percentage	10	90	100	

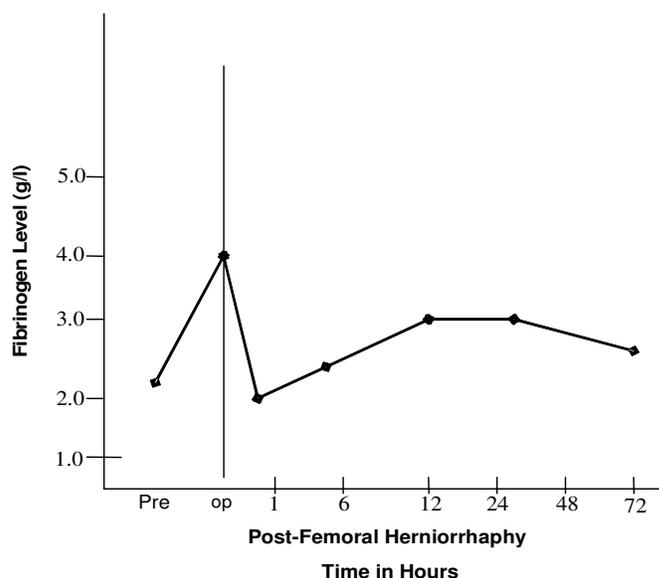


Figure 1. Pre and postoperative changes in plasma fibrinogen concentration before, during and after operation over a 3 day period.

this study were essentially normal. They only presented with the swelling in their groin. Those of them with complicated femoral hernia were not included in this study. This latter group is more likely to have changes in their haematological parameters.

Plasma fibrinogen influences red blood cells and platelet aggregation. It also influences blood viscosity and thus the development of deep vein thrombosis (DVT) post operatively (Gwatkin, 2007). Therefore, the higher the fibrinogen levels and activity, the higher the chances of developing DVT.

In our study there was a sharp rise in the level of fibrinogen during surgery. This agrees with other reports among Caucasians (Badoe et al., 1986; Elusoji and Momoh, 2003). This suggests that femoral herniorrhaphy may in fact lead to a hypercoagulable state and a markedly increased euglobulin clot lysis time in the immediate post operative period. The hyper coagulable state may be beneficial in ensuring some haemostasis during surgery.

Some report claimed that thrombosis is uncommon among Africans (Dupuy et al., 1978; Essien, 1976). This may actually be due to the fact that they are usually not diagnosed because of lack of adequate facility for the diagnosis in most hospitals in Africa. Fortunately the rise in the fibrinogen level returns to the normal value soon after surgery. This is quite beneficial as thrombosis, if at all it occurs in our patients, is not likely to be very serious.

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