B
ingladesh has an estimated population of 130 million. Approximately 1.2 million of them are
disabled. It is estimated that 70% of them are due to
consequences of stroke.\textsuperscript{1} Stroke is the most common
cause of death as a result of neurologic disorders and the
third leading cause of death in the United States of
America each year. Ischemic stroke from atherosclerotic
lesions of the carotid bifurcation is the most common
cause of stroke in adults.\textsuperscript{2} In recent years carotid
derarterectomy has proved to be the most effective form
of management for atherosclerotic carotid bifurcation
disease. The primary objective of surgery for
extracranial lesions involving the cerebrovascular system
is the prevention of stroke. The early results comparing
carotid endarterectomy by standard method with or
without patch to that of eversion endarterectomy
suggests that eversion endarterectomy by itself may be a
better and more beneficial way to perform carotid
endarterectomy. There are various prospective
randomized studies suggesting that eversion carotid
endarterectomy allows to remove the entire
atherosclerotic plaque and closure of the carotid artery at
the widest part such as the carotid bulb. Therefore, early
occlusion, restenosis, stroke and mortality rates have
improved.\textsuperscript{2,4} The paper highlights the surgical procedure
involved in carotid eversion endarterectomy, evaluates
the perioperative results and examines its prospects in a
developing country like Bangladesh. Fifteen patients of
the Neurology Department of the Bangabandhu Sheikh
Mujib Medical University (BSMMU), and 8 patients of
the vascular surgery department of the National Institute
of Cardiovascular Diseases (NICVD), Dhaka,
Bangladesh are included in this study. Thirteen of them
were subjected to carotid endarterectomy by eversion
technique during February through to May, 2002.

After proper clinical evaluation all 23 patients were
examined by carotid duplex and 8 re-evaluated by
magnetic resonance angiography. All patients revealed
significant stenosis at carotid bifurcation, internal carotid
artery (ICA) and external carotid artery (ECA) origins
above the range of 60-70% and more. Indications of
surgery was based on prospective randomized trials
which provided definitive data concerning indication for
carotid endarterectomy.\textsuperscript{1,4} 1. Patients with hemispheric or
monocular transient ischemic attacks (TIAs) or prior
mild stroke with a 70% or greater stenosis. 2. Patients
with cresendo TIAs in the presence of a 50% or greater
stenosis. 3. Asymptomatic patients with high grade
stenosis.

Any patients who has had a major stroke in the past
and was found devastated by neurologic dysfunction or
altered level of consciousness was excluded from
surgery. In our series, out of 23 patients 10 were
excluded from surgery due to either total occlusion of
ICA or very poor general condition as a result of stroke.
Six of our patients undergoing endarterectomy had
previous coronary artery bypass grafting and one had
grafting for abdominal aortic aneurysm. Out of 13
patients, 12 were given cervical rami block anesthesia
with mild sedation. One patient underwent
endarterectomy under endotracheal intubation
anesthesia. The affected carotid artery was approached
through standard incision. Once the carotid bifurcation
was identified, intravenous unfractionated heparin
(2000-3000 intravenous approximately) was given and
common carotid artery (CCA), ICA and ECA were
mobilized. The main feature of the procedure was
complete division of the ICA at the bulb. The ICA was
mobilized circumferentially and endarterectomy started
at the rim (Figure 1). The adventitia and the outer layer of
the media were separated from the atheromatous core.
Gently peeling the outer layer over the atheromatous
core allowed us to see the end point directly (Figure 2).
After complete removal of the atheromatous plaque, the
ICA was back flushed with blood, inverted back and
then irrigated with heparinized normal saline. Endarterectomy from CCA and ECA was carried out
next and ICA was reanastomosed to the CCA using
continuous 6/0 prolene suture (Figure 3). After this
circulation was reestablished into the ECA first then
ICA. The wound was closed in 2 layers. The average
cross clamp time was approximately 12 minutes. Drain
was not routinely used and postoperative heparinization
was not carried out. In the postoperative period patients
remained for at least 8 hours is an intensive nursing area
irrespective of the type of anesthesia. Nothing was
allowed orally until the following day. An adequate
neurologic examination was practiced to evaluate
extremity strength, fine hand movements, articulated
speech, visual acuity and mentation. The neurologic
evaluation was repeated frequently during the initial
postoperative period. Maximum effort was given to keep
our patients hemodynamically stable. Provided that all
parameters were satisfactory after several hours of
observation, the patient was transferred to a general care
ward, where full activity was encouraged during the 3-4
days of hospital convalescence. After discharge from
hospital an outpatient examination was performed
approximately a month later in order to assess the
neurologic status, the presence and quality of carotid
pulse and residual bruit, if any and wound healing. After
The age of the patient ranged from 45-75 years with the highest number in the age group 61-75 years (53.8%). Patients were predominantly male (84.6%). Indications for operation were symptomatic disease in 12 (92.3%) and asymptomatic patient with significant carotid lesion in one (7.7%, Table 1). CCA to ICA shunts were not used in any patient, but kept ready at hand. There was no operative death. Two patients died from myocardial infarction during the first month of surgery (Table 2). Two patients suffered from postoperative hypertensive crisis followed by stroke. One of them recovered fully during the next 3 months, while other one developed right sided hemiplegia. Early follow up of carotid endarterectomy was found to be encouraging. Out of 13 patients, all surviving 11 showed 100% patency of the operated carotid artery.

This the patients were scheduled for 6 monthly follow up which included clinical examination and duplex ultrasound study of neck vessels.

In this study, total 13 patients were subjected to carotid endarterectomy using eversion technique, first of its kind introduced in Bangladesh in recent times. Smoking was found as the commonest (76.9%) among the risk factors followed by coronary artery disease (61.5%). The next common factor was hypertension and diabetes mellitus (53.8%). Patients with history of TIA, amaurosis fugax, stroke or significant atherosclerotic risk either for them or family were advised carotid artery evaluation. Until recently, angiography of the carotid artery was the gold standard for diagnosis of carotid artery disease. It is invasive and relatively costly procedure. For our patients, we replaced this test with duplex study and or MRA. Although the carotid endarterectomy operation is critical, it is simple enough that it can be performed in any standard...
Carotid eversion endarterectomy: prospects in a developing country

In conclusion we can say that carotid eversion endarterectomy is a plausible and worthwhile procedure to be considered in developing countries.

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The outcome of pregnancies complicated by hyperemesis gravidarum

Asma Al-Ojaili, MD, Anna Krolikowska, MD.

Hyperemesis gravidarum is a common complication of early pregnancy, and pathogenesis of this condition remains an enigma. There is also no unified agreement on whether hyperemesis gravidarum has an impact on the final outcome of affected pregnancy. Inspired by these questions we decided to undertake this retrospective study. The files of 75 patients with hyperemesis gravidarum who delivered in Sultan Qaboos University Hospital, Oman between October 1998 and October 2002 were evaluated. All of them were first trimester, singleton pregnancies. The criteria to diagnose hyperemesis gravidarum was as follows: ketonuria of 2 pluses or more, vomiting at least 4 times a day and no other medical cause that might have been responsible for emesis. The control group of 150 patients with the same characteristics, but no excessive vomiting was selected randomly. The average age of the patients was identical in both groups at 26 years. The incidence of pregnancy complications, namely, anemia gravidarum, pregnancy induced hypertension, intrauterine growth retardation, polyhydramnios and oligohydramnios, diabetes, preterm rupture of...
membranes and preterm delivery was almost the same in both groups. The percentage of instrumental deliveries was higher in the study (6.7%) than in the control group (4%), but the incidence of cesarean section was higher in the control group (10.7% in comparison with 6.7% in the study group). The average birth weight was very similar in both groups (2989 g in the study and 3112 g in the control) and so was the condition of the newborn (average Apgar score at 5 minutes of 9.7 in both groups). Interestingly, we have noticed a higher proportion of female newborns in the study group (61.3%) than in the control group (48.6%). This is consistent with other reports in the literature. There was one case of postpartum psychosis in the study group, which may confirm the suggestions that hyperemesis gravidarum is more common in the postpartum depressed women. Our number is of course, too small to draw any definite conclusion. In summary, this study confirms other similar reports, which suggest that hyperemesis gravidarum does not, in any significant way, affect the future outcome of pregnancy.

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References


Antisperm antibodies and unexplained infertility in Syria. An unsolved problem?

Fawza M. Monem, PhD, Hassan A. Moalla, BSc Pharm.

Infertility is a common condition with important psychological, economic, demographic, and medical implications. Demand for infertility services has grown substantially in recent years, even though the prevalence of infertility has been stable. Infertility is the inability to conceive after one year of intercourse without contraception. The prevalence of infertility is approximately 13-14%. The causes of infertility are: male factor 18%, tubal damage 14%, endometriosis 9%, coital problems 5%, cervical factor 3%, and unexplained 28%. Antisperm antibodies are now a well-established cause of male infertility, although this relationship was suggested more than 30 years ago. Current basic science research is improving our understanding of the complex relationship between infertility and the immune system. Approximately 10-30% of men with unexplained infertility are thought to have immunologic factors involved, confirming the importance of our research.

Our study was carried out on 2 groups, the first was patients including 30 men and 24 women aged 18-45 years, who suffered from unexplained infertility (all their routine tests for evaluating infertility are normal). The second group was controls (who conceived their last child 2 years or less before the study), included 45 fertile men and women aged 17-52 years. Both groups were divided into age categories, category one included those <30 years, category 2 included those aged between 31-35 years, category 3 included patients aged 36-40 years; the last category (4) was formed by those who were >40. Based on the history of previous surgery in the reproductive tract in our male patients, we divided them into 2 groups, the first group included 11 patients with previous surgery, and the second group consisted of 19 patients with no previous surgery on their reproductive system. We evaluated the patients and control groups by detecting antisperm antibodies (ASA) (immunoglobulin (Ig) A, IgM, and IgG antibody classes) in their serum by 2 methods. The first method was indirect immuno-fluorescence (IIF) with “Antibodies against spermatozoa” from Euroimmun Company, Germany. Antibodies against spermatozoa antigens can bind to various structures of the spermatozoa (head, tail, and middle part). Fluorescence is most frequently found in the tail region, and this test would be considered positive when we found any fluorescent tail in diluted serum (1:10). This method is qualitative, and may be used as semi-quantitative by using a serial dilution of serum. The second method was an enzyme linked immunosorbert assay (ELISA) with “Spermatozoa Antibodies ELISA” from IBL Immuno-biological laboratories, Germany. This is a quantitative method, and the cutoff for this method was 150 mU/100µl (75 U/ml in the undiluted sample), hence, every sample over this cutoff was considered positive. Figure 1 showed that out of 54 patients, 22 were positive for the presence of ASA (total) in their serum when the IIF method was used, these included 11 males and 11 females (50% men and women), and out of 45 controls, only 3 sera (males) contained antisperm antibodies. When the ELISA method was used, 20 out of 54 patients’ serum was positive for spermatozoa antibodies, including 12 males and 8 females (60% men and 40% women), whereas 4 controls serum (2 men and 2 women) were
positive. Table 1 illustrates the results according to age. The results of investigation of the role of any history of a previous surgery in the reproductive tract in our male patients showed that out of 11 patients with previous surgery, 4 of them were positive in terms of serum-spermatozoa antibodies using the IIF method, and 7 were negative. Out of 19 patients with no previous surgery on their reproductive system, only 7 had spermatozoa antibodies in their serum using the IIF method. Whereas, out of 11 patients with previous surgery, 3 of them were positive in terms of serum-spermatozoa antibodies using the ELISA method and 8 were negative. Out of 19 patients with no previous surgery on their reproductive system, only 8 had spermatozoa antibodies in their serum using the ELISA method.

Statistically, we found that there was a very strong correlation between ASA presence in serum, and unexplained infertility (P=0.000102 using the IIF method, and P=0.0011 using the ELISA method) (Figure 1). However, there was no obvious correlation between the presence of spermatozoa antibodies and age or sex. The same conclusion was reached considering any previous surgical history in the reproductive system. These findings strengthen and enhance the theory of the role of ASA in infertility. Thus, application of antisperm antibody detection should become an integral part of the investigation of unexplained infertility.

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References


Adhesive intestinal obstruction in infants and children

Ahmed H. Al-Salem, FRCSI, FICS.

In adults, the treatment of adhesive intestinal obstruction (AIO) is well established, and conservative treatment in the form of intravenous fluids and nasogastric aspiration form the basis for the initial therapy in selected patients.1 This however is not the case in the pediatric age group, where the treatment is still controversial.1-5 One reason for this is that AIO is relatively rare in the pediatric age group. Add to this the lack of consensus regarding the place of conservative treatment of AIO in infancy and childhood. This is a review of our experience in the management of AIO in infants and children. To our knowledge this is the first report regarding AIO in infants and children from the Kingdom of Saudi Arabia.

The medical records of all children admitted with the diagnosis of AIO between June 1989, and December 2000 were retrospectively reviewed for: age at diagnosis, sex, interval between initial surgery and presentation with AIO, presenting symptoms, initial diagnosis, type of operation, treatment and outcome. In all children the treatment was initially conservative and consisted of resuscitation with intravenous fluids and electrolytes, nil by mouth, nasogastric aspiration and close observation. During observation, the following were recorded: temperature, abdominal girth, and so on.

Table 1 - Age group-distribution of unexplained infertile patients and controls in accordance with the presence of ASA in their serum.

<table>
<thead>
<tr>
<th>Method</th>
<th>Category 1 (≤30 years)</th>
<th>Category 2 (31-35 years)</th>
<th>Category 3 (36-40 years)</th>
<th>Category 4 (&gt;40 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA+ by IIF</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>ASA- by IIF</td>
<td>21</td>
<td>20</td>
<td>24</td>
<td>15</td>
</tr>
<tr>
<td>ASA+ by ELISA</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>ASA- by ELISA</td>
<td>16</td>
<td>19</td>
<td>26</td>
<td>14</td>
</tr>
</tbody>
</table>

ASA+ = Positivity of anti-sperm antibodies, ASA- = Negativity of anti-sperm antibodies, IIF - indirect immuno fluorescence, ELISA - enzyme linked immunosorbent assay

Figure 1 - Prevalence of ASA in unexplained infertility group (54 males and females) determined by indirect immuno-fluorescence (IIF) and enzyme linked immunosorbent assay (ELISA).
Adhesive intestinal obstruction in infants and children

Abdominal examination for localized tenderness every 4-6 hours, daily complete blood count and plain abdominal radiographs. The amount and quality of nasogastric aspirate was also recorded. The frequency of these observations were modified according to the response in each case and conservative treatment was continued for those who showed response in the form of decrease in the amount of nasogastric aspirate, no fever, no leukocytosis, no localized abdominal tenderness, and passage of flatus or feces. The presence of localized abdominal tenderness, fever and leukocytosis in the absence of any other cause, or evidence of complete intestinal obstruction, or both, that is persisting or free peritoneal air were considered indications for surgery.

During a 10.5 years period, only 24 infants and children (14 male and 10 female) were admitted with the diagnosis of AIO. Their ages at the time of presentation ranged from 1 month to 15 years (mean 5.35 years and median 5 years), while their ages at initial operation ranged from 2 days to 15 years (mean 4.3 years and median 2.25 years). Time elapsed from initial operation to presentation ranged from 4 days to 7 years (mean 1.2 years and median 2.5 months), and 79.2% of our patients developed AIO within one year from initial operation. The causes necessitating initial surgery are shown in Table 1. Only 2 (8.3%) responded to conservative treatment. One of them was 15-years-old male with sickle cell disease who had splenectomy and cholecystectomy for splenic sequestration crisis and gallstones. Postoperatively he developed hematoma at the splenic bed that required reexplanation. Ten days postoperatively, he developed AIO that responded to conservative treatment. The other patient was 12-years-old female who had appendectomy for simple acute appendicitis and developed AIO one year postoperatively. The other 22 children required surgical intervention. In 2 of them there was a single band causing intestinal obstruction, while the other 20 had multiple adhesions. Fourteen of them required releases of adhesions only, while 6 (30%) required resection of small intestines. Three of our patients died giving an overall mortality of 12.5%. One of them was a 1-year-old male who had hydrocephalus and ventriculo-peritoneal shunt. He developed AIO 2 months post insertion of the shunt. Postoperatively, he did well but died of other non related causes. The second patient was a 14 months old female who had Hirschprung’s disease with several attacks of enterocolitis. She also had failure to thrive, malnutrition, and zinc deficiency. She was found to have multiple adhesions and fistula communication between small and large intestines that required resection and end to end anastomosis. Postoperatively, she developed sepsis and died. The third patient was operated on in another hospital at the age of 10 days for congenital pyloric obstruction. Two weeks postoperatively, he presented to our hospital with AIO due to a single band 10 cm from the ileocecal valve. This was released, the bowel resected and end to end anastomosis was carried out. Postoperatively, he developed gram negative septicemia with disseminated intravascular coagulation and died. None of our patients developed clinical recurrence of adhesions.

Intraabdominal adhesions are common complications after laparotomy both in children and adults, but fortunately in only few of them they manifest clinically as AIO. Adhesive intestinal obstruction is one of the most frequent surgical emergencies in adults, and in many countries it is the second most frequent cause of intestinal obstruction after obstructed external hernias. This however is not the case in the pediatric age group where not only AIO is not as common, but the operative procedures that cause it are also variable. The exact incidence of AIO in the pediatric age group is not exactly known and varies from 2.2-8.3% in the literature. Over a period of 10.5 years, we treated only 24 children with AIO. The incidence of AIO is also operation related. Our results like others confirm that appendectomy and subtotal colectomy are the most common prior operations, and the risk of developing AIO is greater when there were more than one prior laparotomy, and when during the prior operation there was already peritonitis. This explains the high frequency of AIO in those with Hirschprung’s disease. In a series of 871 children who were appendectomized, 1.3% of them developed AIO, and this was highest (3.4%) in those who had perforated appendicitis. The interval between initial surgery and development of AIO is also variable. In one series, 80% of patients developed AIO within 3 months of initial operation. On the other hand over 80% of Janik et al2 series developed AIO within 2 years of the initial laparotomy. The mean interval from initial operation to presentation in our series was 1.2 years, and 79.2% developed AIO within one year of initial operation, but one of our patients developed AIO 7 years after initial surgery. The diagnosis of AIO is not difficult to make, but the treatment is still controversial. Conservative treatment forms the basis of management for AIO in adults and fever, leukocytosis, or localized abdominal

### Table 1 - Predisposing causes for adhesive intestinal obstruction.

<table>
<thead>
<tr>
<th>Diagnosis and operation</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendectomy</td>
<td>6 (25)</td>
</tr>
<tr>
<td>Hirschsprung’s disease</td>
<td>4 (16.7)</td>
</tr>
<tr>
<td>Wilm’s tumor</td>
<td>3 (12.5)</td>
</tr>
<tr>
<td>Ventriculo-peritoneal shunt</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Necrotizing enterocolitis</td>
<td>2 (8.3)</td>
</tr>
<tr>
<td>Splenic abscess</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Splenectomy + cholecystectomy</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Left congenital diaphragmatic hernia</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Congenital duodenal obstruction</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Intussusception</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Volvulus</td>
<td>1 (4.2)</td>
</tr>
<tr>
<td>Duodenal perforation</td>
<td>1 (4.2)</td>
</tr>
</tbody>
</table>

**Total number of patients** 24 (100)
tenderness, or both or complete intestinal obstruction has been set as indications for surgical intervention. This however is not the case in the pediatric age group where the treatment is still controversial. For many years, it has been stated that there is no place for conservative treatment in infants and children with AIO, and to obviate delay in treatment with its attendant risks, increased morbidity and mortality, early surgical intervention was advocated. As a result of this aggressive surgical approach a notable decrease both in morbidity and mortality was reported. In our series, only 2 (8.3%) responded to conservative treatment, and 6 (30%) required intestinal resection. It is however, difficult to speculate whether this 30% resection rate could have been reduced by early surgical intervention in our patients. Although our series is small, we like others feel that conservative treatment has a limited place in the management of infants and children with AIO.

Further studies, however are required to substantiate this. With the recent advances in the diagnostic and therapeutic laparoscopy, laparoscopic management of AIO in children is now feasible, safe and an increasingly utilized form of therapy. Being less invasive, laparoscopy should prove valuable towards early surgical intervention in children with AIO.

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