ENDOTOXIC SHOCK

(Report of 7 Cases)

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This serious condition with grave prognosis is receiving more attention recently. Cases of endotoxic shock were reviewed by Stevens (41 cases), Hall and Gold (35 cases) and Dean and Russel (27 cases). In India, Banerji reported 13 cases and Sing and Achari 4 cases. During the period 1963-65, 7 cases of endotoxic shock were found at Government General Hospital, Kurnool. In six of these endotoxic shock was a complication of septic abortion, with an incidence of 6.5% (96 cases), fifty-five per cent of deaths in cases of septic abortion were accounted by endotoxic shock (6 out of 11 deaths) and the rest 45% were due to bleeding, sepsis and anaemia.

Case 1

Mrs. S., age 30 years, 5th gravida, 4th para, widow, was admitted on 15-9-'64 with history of two months' amenorrhoea and induction of abortion 5 days ago. She was conscious, with blood pressure unrecordable and rapid and thready pulse. There was no history of profuse bleeding per vaginam. There was guarding of lower abdomen with cold and clammy skin. Temperature 99°F, pulse rate 130 per minute, and Hb 50%. Per vaginam, foul-smelling discharge was present; the size of the uterus was not made out and the products of conception were felt through the open cervical canal. Intravenous saline drip with nor-adrenaline 4 mg and hydrocortisone 100 mg were given. She expired in 4½ hours after admission.

Case 2

Mrs. G., aged 35 years, was admitted on 15-1-'63 with history of two months' amenorrhoea and induction of abortion one week ago. Per abdomen there was rigidity and guarding below the umbilicus. The external genitalia were swollen and a stick was removed from the vagina. Per vaginam, the cervical os was closed and the uterus was enlarged to 14 weeks' pregnancy size and soft. She was conscious and her pulse 100 per minute, blood pressure 120/80 mm Hg., temperature 99°F and Hb. 7 gm%. Achromycin 250 mgs six hourly was given. On 17-1-63 at 7 a.m. she was found by the nurse to be in a state of collapse with feeble, thready pulse. Her blood pressure was 60 mm., temperature 101°F, pulse 140 per minute. She was conscious but restless. Shock was treated with intravenous nor-adrenaline drip 4 mg. in glucose saline, hydrocortisone 50 mg. six hourly, blood transfusion 300 cc and dextraven 1 bottle within the next 36 hours. Steclin 100 mg parentarily twice a day, antitetanus serum and anti-gasgangrene serum were given. Inspite of treatment the condition of the patient did not improve and she expired on 18-1-63 at 8 p.m.

Case 3

Mrs. S. A., age 30 years, gravida 3, para 2, was admitted on 20-3-'65 with history of induced abortion 5 days ago. On examination the abdomen was diffusely distended, markedly rigid and tender. The patient was conscious and dehydrated with a dry coated tongue. Per vaginam, cervical os

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was closed. The uterine size was not made out. There was diffuse tenderness with flattening in the lateral fornices and induration. Offensive purulent discharge. was present. Pelvic cellulitis was diagnosed. Blood pressure 110/70 mm Hg., temperature 104°F, pulse 134 per minute, Hb 10 gm%. Achromycin 250 mg intravenously twice a day and antitetanus serum were given. On 21-3-65 at 2:30 p.m. the patient was found by nurse to be suddenly collapsed. The blood pressure was 70 mm and pulse 130 per minute with feeble volume and tension. Temperature 100°F. Intravenous glucose drip with nor-adrenaline 4 mg was started but the patient expired after two hours.

Case 4

Mrs. G., age 35 years, para 2, widow, was admitted on 7-8-'64 with a history of induced abortion 8 days ago, retention of urine since two days and amenorrhoea of 1½ months. On examination, the patient was conscious and the abdomen was uniformly distended with marked tenderness and mass in the lower half. Temperature 102°F pulse 92 per minute, blood pressure 110/70 mm Hg. Per vaginam, there was induration and tenderness in all fornices with a bulge in the posterior fornix, due to abscess in pouch of Douglas extending upwards as a mass of 18 weeks' pregnancy size. On 8-8-64 under general anaesthesia posterior colpotomy was done and 20 ounces of green pus were drained. Within 5 minutes the patient was found to be collapsed, with rapid thready pulse, cold and clammy extremities and hypotension of 70 mm Hg. Achromycin 250 mg intravenously, nor-adrenaline 4 mg in intravenous glucose drip and hydrocortisone 50 mg I.v., six hourly were given. Her condition did not improve and she expired 48 hours after the onset of the shock. Culture of pus showed pseudomonas aerogenes.

Case 5

Mrs. B. P., age 20 years, 3rd para, 4th gravida, was admitted on 16-9-'64 with history of 3 months' amenorrhoea, fever and slight bleeding per vaginam since 2 days. On examination she was conscious, restless and jaundiced. Blood pressure 70/50 mm Hg., temperature 95°F, pulse 100 per minute. There was tenderness in lower abdomen with moderate distension and guarding. Per vaginam, the uterus was enlarged to 8 weeks' pregnancy size, the products of conception were felt through the open cervical os with slight bleeding. Six hours after admission, the general condition of the patient deteriorated with rapid, feeble pulse, cold and clammy skin and suppression of urine. Intravenous glucose drip with nor-adrenaline 4 mg, hydrocortisone 50 mg, Achromycin 100 mg intravenously and blood transfusion 300 cc were given without improvement in her general condition. She expired 10 hours after admission.

Case 6

Mrs. M., age 35 years, gravida 6, para 5, was admitted on 27-8-'65 with history of labour pains since 14 hours. The size of uterus was 36 weeks' pregnancy, with extended breech presentation. Per vaginam, cervix was 2 cm. dilated, well applied to presenting part and membranes were absent. Pitocin drip 1-5000 was given on 29-8-65 and 30-6-65 for hypotonic uterine inertia. A dead female baby was delivered at 11:30 a.m. on 30-8-65 and the placenta was removed manually 15 minutes later, after giving Methergin prophylatically. Liquor amnii was purulent, with offensive odour. One hour later the patient was found to be collapsed with feeble pulse, of low volume, 76 per minute and blood pressure 70/40 mm Hg. Stecline 100 mg. twice a day intravenously was given on 29th and 30th; there was no postpartum haemorrhage. Glucose saline with nor-adrenaline drip 4 mg intravenously, and hydrocortisone 100 mg six hourly were given to combat shock. Later, acute renal failure with oliguria for 6 days complicated her progress and she was discharged cured on 17-9-'65. Culture of pus-coagulase positive staphylococci and E. coli grown.

Case 7

Mrs. K., age 30 years, widow, para 3, was admitted on 9-2-'65 with history of 3½ months' amenorrhoea and slight bleeding per vaginam since 7 days. Her blood

pressure was 90/40 mm., pulse 120 per minute, temperature 990°F. The abdomen was distended with guarding and tenderness in the lower part. Per vaginam, the cervical canal was open, with foul smelling discharge and products of conception were felt. Incomplete septic abortion was diagnosed and penicillin 5 lakhs was given and intravenous glucose drip was started with nor-adrenaline 2 mg. She died 13 hours after admission due to septic shock.

Comments

Endotoxic shock is met with in obstetric patients complicated by intrapartum sepsis, septic abortion and infection following surgery of genital tract, in older women. The endotoxin, lipopolysaccharide, is produced by lysis of somatic antigen of dead gram negative organisms, E. coli, Proteus vulgaris and aerogenosa) and streptococci and staphylococci. The increase in incidence of endotoxic shock may be due to changing pattern of organisms in puerperal sepsis and septic abortion, 40% of infections being due to enterobacterial group (Reid). In our series endotoxic shock was a complication of septic abortion in 6 cases and in one case intrapartum sepsis, with mannual removal of placenta and pitocin drip, predisposed to the onset of shock.

The pathology of endotoxic shock is characterised by pooling of large quantity of blood in splanchnic vascular tree, reduced venous return and cardiac output, uraemia, acidosis, adrenal cortical failure, generalised vascular spasm and intra-vascular fibrination, with a rise of portal vein pressure (Thomas and Zweifach). In animal experiments generalised Schwartzman reaction, with take up of endotoxin by reticulo-endothelial cells resulting in leucopaenia, was found to accentuate endotoxic effects, and reduced mortality resulted following the use of sympatholytics (dibenzyline).

Endotoxic shock is sudden in onset, and irreversible, not responding to usual treatment of shock, with a high mortality rate. Intravenous fluids with Nor-adrenaline, intravenous hydrocortisone, antibiotics (chloromycetin) and removal of necrotic tissue are advocated for treatment of shock. Early recognition of shock and vigorous treatment leads to better prognosis. If there is no response to medical treatment in 6-8 hours, the present trend is for surgical treatment like, evacuation of uterus and hysterectomy. The place of surgery is controversal and it is risky to decide upon surgery which may be life saving or fatal during shock.

The mortality in the reported cases varies from 30 to 70%, and was 60% in the series of Dean and Russel. In our cases the mortality was 85% mainly because of delay in the diagnosis and treatment and inadequate conservative treatment, for resuscitation. The interval between induction of abortion and admission to hospital was 2 to 8 days and 3 cases were in profound shock at the time of admission. The onset of shock was 12 and 24 hours after admission into the hospital in two cases, in 1 case soon after posterior colpotomy and another after manual removal of placenta. Death occurred in four cases within 24 hours of onset of shock and in two cases 60 and 72 hours later. The surviving case was complicated by acute renal failure.

Schwartz and Emrich advocate trial of other methods like surgery or vasodilators if there is no response to vasopressor and cortisone therapy. Speroff states that early surgery has an important place in therapy. Martinez and Fernandez were impressed with heparin and vasodilator (phenoxy benzamine) therapy and reduced mortality to 5.5%. The use of vasopressor drugs should be viewed as possibly harmful because acute renal failure due to vasocontriction and tissue anoxia would be accentuated. So the use of vasodilators seems reasonable alternative treatment in addition to early removal of septic focus by vaginal evacuation or hysterectomy at an early stage.

Summary

Seven cases of endotoxic shock are reported. The predisposing condition in six cases was septic abortion and in one of these, posterior colpotomy to drain pelvic abscess precipitated shock. In one case manual removal of placenta and pitocin drip in a case of intrapartum sepsis precipitated endotoxic shock and later was complicated by acute renal failure. The mortality with conservative management was 85%; the use of early surgical removal of septic focus and vasodialators is suggested.

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