

LOCALISATION OF PLACENTA BY SOFT TISSUE RADIOGRAPHY IN PREVIOUS CAESAREAN SECTION

by

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The lengthening list of indications for caesarean section makes the management of subsequent deliveries a problem which confronts the obstetrician with ever-increasing frequency. Where the original caesarean section was performed for a non-recurrent indication subsequent vaginal delivery may reasonably be expected, and it is customary to allow such patients to go into labour. The obvious and ever present risk in vaginal delivery following caesarean section is that the scar may rupture. Other factors advanced as predisposing or contributing to weak scar formation are the influence of placental implantation over the scar by chorionic invasion which accentuates the weakness of the scar resulting in disruption of the scar. Routine x-ray placentography is suggested to detect the location of the placenta in all cases of previous caesarean section and particularly those cases in which vaginal delivery is contemplated, because of the plausible concept that the implantation over the scar area is more conducive to rupture, specially of the classical scar.

Material and Method

Fifty-four cases of pregnancy with

previous caesarean section, admitted from September 1964 to August 1965, in the Medical College Hospital, Nagpur, were studied. Cases with previous caesarean section were usually admitted at 34-36 weeks. Those cases suspected to have had classical caesarean section done elsewhere or with twin pregnancy or hydramnios were admitted earlier than 34 weeks, as over-distension of the uterus weakens the scar, and classical scar is known to give way during pregnancy at 32 to 38 weeks' gestation. The site of implantation of the placenta was determined by lateral soft tissue x-ray at 34-36 weeks wherever possible. Those patients, who had had previous caesarean section and got admitted with labour pains and delivered either vaginally or by caesarean section, could not be subjected to soft tissue radiography, but the site of implantation of placenta was determined by palpation at the time of delivery. Those cases who had soft tissue radiography done also had their placental site, palpated at the time of delivery, to confirm the radiological evidence of localisation of placenta.

Most of the cases had had one previous caesarean section (39 cases) Only one had three previous sections and 14 cases had two previous caesarean sections.

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Patients with one previous lower segment caesarean section, where there is no recurrent indication, are the candidates for short trial of vaginal delivery. It is important to know the type of caesarean section done and, in lower segment, whether it was an inverted "T" shaped incision, where the chances of scar rupture are greater than in the usual lower segment incision. All the classical sections were done outside this institution.

In previous two caesarean sections all were of lower segment type, except one where one was a classical and one a lower segment caesarean section.

Soft tissue radiographs were taken in all cases of previous caesarean section at 34 to 36 weeks and x-ray findings confirmed by palpating the placental site at the time of delivery.

In 22 out of 47 cases where soft tissue radiographs were taken, placenta was correctly localised during pregnancy, which was confirmed by palpating the placental site after delivery. Only in 6 cases was it not correctly localised. In 11 cases the placenta could not be properly visualised. It might be that the exposure was not proper and x-ray was taken earlier than 34 weeks in some cases suspecting it to be a classical caesarean section. In 7 cases radiography was not possible as the patients were admitted with labour pains and delivered. In 8 cases placenta was not palpated after delivery as it followed immediately after. So confirmation in these cases by palpation could not be done.

Table I shows that in 4 cases the placenta was over the scar rendering

TABLE I
Showing localisation of placenta by palpation after delivery

Localisation of placenta	No. of cases
Upper segment posteriorly ..	25
Upper segment anteriorly ..	14
Lower segment anteriorly over the scar	1
Lower segment posteriorly ..	1
Anteriorly upper segment over the scar	3
Not palpated	10

it weak by invasion of the chorionic elements. One was in the lower segment where the placenta was type I placenta praevia anteriorly and was adherent to the scar. Three were in classical caesarean section where the placenta was situated anteriorly in the upper segment over the scar. One of these cases had rupture of the uterine scar during thirtieth week of pregnancy which was diagnosed by pain in abdomen, rapid pulse and fall of blood pressure, but there was no vaginal bleeding. The patient with two caesarean sections, one classical and one lower segment, had placenta over the classical scar. After a lower segment operation and removal of the placenta the scar gave way.

Discussion

Every labour following a previous caesarean section is a "trial of labour" and hence it should be conducted only in a well equipped institution, the choice for elective caesarean or vaginal delivery being made after careful scrutiny of the merits of each case. Once it is decided to allow the patient to deliver vaginally, the question of the strength of the scar arises.

Besides many factors which cannot be evaluated properly, implantation of the placenta over the scar weakens it. If at a subsequent pregnancy the placenta happens to be implanted over the scar — and this occurs once in two to three cases — the destructive action of the chorionic villi on the fibrous tissue becomes pronounced and very decidedly predisposes to rupture. Wilson (1951) studied microscopic sections through ruptured scars over which placentas were implanted and demonstrated that increased vascularity, haemorrhagic infiltration and trophoblastic invasion could conceivably weaken the myometrium in the scar region. "I attach great importance to the implantation of placenta over the scar as definitely favouring rupture" (Munro-Kerr, 1964).

Out of 34 lower segment caesarean sections, one placenta was over the scar. Because of the added risk of scar rupture when the placenta is over the scar these patients are not subjected to vaginal delivery. This patient was taken up for caesarean section after correctly localising the placenta in soft tissue radiograph.

Out of 4 classical caesarean sections one ruptured during pregnancy at 30 weeks gestation, the placenta being situated over the scar. Another classical scar ruptured after removal of the placenta, which was situated over the scar.

Schmitz and Gajewski (1951) reported 6 uterine scar ruptures in 190 patients with previous caesarean sections. Out of the 6 ruptured uteri, in 3 cases the placenta was over the scar—two were classical and one was lower segment caesarean section.

Wilson (1951) reported 15 cases of scar rupture—11 classical and 4 lower segment. In 8 cases the placenta was situated over the scar. The incidence of classical scar rupture given by Parikh (1964) and Sheth (1964) is 42.85 per cent and 39.4 per cent respectively though it is not clear whether the high incidence of scar rupture is due to implantation of placenta over the scar.

The incidence of classical scar rupture is higher as compared to the lower segment and the chances of the placenta being situated over the classical scar are much greater (as in 40 per cent the placenta is situated anteriorly) than the lower segment, thus increasing the danger of the classical scar rupture. Three out of 4 classical caesareans had placenta over the scar. Unless it is a placenta praevia the placenta will not be over the scar of the lower segment. The longitudinal fundal type of scar is prone to complete rupture with extrusion of the foetus and often the placenta into the abdominal cavity, particularly when implanted on the anterior uterine wall. Bleeding and shock are likely to be more severe when the placenta is on the anterior uterine wall over the disrupting scar. With classical caesarean section the placenta being over the scar, the patients should be taken up for elective section as soon as the foetus is mature. To minimise the incidence of scar rupture, maternal and foetal mortality, all cases of caesarean sections should have a soft tissue radiograph taken to localise the placenta.

Summary

Fifty-four cases of pregnancy with

previous caesarean section were studied regarding the localisation of placenta by soft tissue radiography. Out of 47 cases who had x-ray taken, in 22 cases the placenta was correctly localised. One classical scar ruptured at 30 weeks' gestation due to implantation of placenta over the scar. A case with previous two caesarean sections — one of them being classical — ruptured after removing the placenta which was situated over the scar. In three out of four classical caesareans and one in the lower segment the placenta was situated over the scar.

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