Modified novel management of cervical molar pregnancy and its related complications

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Abstract

A-30-years-old-primigravida-patient with significant vaginal bleeding for 1-week following amenorrhea for 2-months and a positive pregnancy test. Duplex-US findings were suggesting cervical molar-pregnancy. Systemic methotrexate was administered as first-line therapy but necessitated dilatation-and-curettage followed by intracervical-diluted-vasopressin and adequate intracervical foley's-balloon inflation to control bleeding but it was failed. Then, we resorted modified novel management of cervical molar pregnancy and its complications as uterine artery embolization with embologent gelfoam "slurry" soaked with methotrexate called trans-arterial-chemo-embolization (gTACE) for an immediate successful hemostatic measure to save the life and uterus of the patient suffering from rare manifestations of gestational trophoblastic disease.

Title:

"Modified novel management of cervical molar pregnancy and its related complications"

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Running Titles: Trans-arterial-chemo-embolization in gestational trobhoblastic diseases and its complications.

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with methotrexate called as trans-arterial-chemo-embolization (gTACE) for an immediate successful hemostatic measure to save the life and uterus of the patient suffering from a rare manifestations of gestational trophoblastic disease.

Main Text:

Introduction: 30-years-primigravida-patient came in emergency of our tertiary care Institution with 'on and off' per-vaginal (P/V) bleeding for 1-week following amenorrhea for 2-months duration with positive urine pregnancy test. She was mildly anemic and her vitals were stable. Per-speculum (P/S) examination, cervix was bluish in color, ballooned-up with dilated cervical Os and minimal bleeding from the cervix was seen. P/V-examination revealed soft, bulky cervix and 8-weeks size uterus. Hemoglobin was 9.5g/dL and β-HCG was 45667 mI U /mL.Thyroid, liver and renal functions tests were within normal limits. Ultrasonography revealed multi-cystic mass measuring˜ 55x48x44 mm size involving lower uterine segment and cervix with surrounding increased vascularity suggesting molar pregnancy (Fig 1,2).

Materials and methods: Injectable methotrexate 1mg/kg IM with Injection leucovorin 0.1mg/kg IM on alternate day was given for 1 week. Her β-HCG levels decreased upto 157mIU/mL after 1-week but bleeding P/V persisted. Patient had heavy bleeding for 3-days after completion of chemotherapy, so emergent suction and evacuation was done but brisk bleeding persisted.20 mL diluted vasopressin was injected intra-cervically but bleeding did not cease. 4-units-PRBC was transfused and intra-cervical foley's balloon was inflated with 30mL of normal saline and placed for tamponade effect but bleeding still continued. Histology section showed diffuse villous enlargement with marked hydropic changes and proliferating extra-villous trophoblast, consistent with complete hydatidiform mole. After approval by institutional ethics committee and obtained written informed consent from patient and her attendants finally, trans arterial bilateral uterine arteries embolization (UAE) was planned with modification of conventional UAE technique called as trans-arterial-chemo-embolization in gestational trophoblastic diseases (gTACE). Injectable methotrexate soaked, mixed and agitated with gelfoam "slurry" as temporary embolic agents were supereselectively injected into offending branches of bilateral uterine arteries to manage immediate ongoing bleeding and to traet cervical molar pregnancy simultaneously. This modified novel technique has successfully managed the ongoing torrential life threatening hemorrhage and preserved the uterus for menstruation and future fertility. Digital subtraction angiography (DSA) of pelvis was done on either side through ® trans-femoral route to identify the offending vessels on each side (Fig 3A, 3B).We super-selectively cannulated each uterine artery with 4F/5F SIM-1 catheters; and if needed progreat microcatheter (Terumo corporation, Tokyo, Japan). Gelfoam "slurry" was prepared after slicing the gelfoam pad into small particles with 11 no. surgical blade and gelfoam particles were mixed with 3mL of iodinated contrast media. After that, the gelfoam "slurry" was mixed and agitated with injectable 2mL of methotrexate drug (50mg). Vigorous mixing of all three materials were done through triway attached with two leur-lock syringes of 10mL capacity and injection made through previously placed 4F-SIM-1 catheter alone or progreat microcatheter co-axially placed through 5F-SIM1 catheter at intended site of embolization till adequate thrombosis of offending vessels were achieved in bilateral uterine arteries (Fig 4A, 4B).

Results: Ongoing bleeding was ceased. Procedure was uneventful. Immediate post procedure Duplex-US revealed maintained slow flow vascularity within uterine myometrium in fundal and body regions, and bilateral adenexae and ruled out possibilities of uterine infarction. Prophylactic broad-spectrum antibiotics, antiemetic, H2-blocker and analgesic medications were advised for 5 days to avoid post embolization syndrome and sepsis.Patient was discharged on day 6^{th}in satisfactory condition with β-HCG value of 39.23 mIU/mL and Hemoglobin of 10.7 gm/dl. Patient was advised to avoid pregnancy for 1-year and was followed-up with serial β-HCG weekly monitoring till normal level (<5 mIU/mL) which took 5 weeks.Cervical mass which was significantly reduced in size after procedure and was gradually disappeared after 5-months (Fig 5).

Discussion: First time, arteriography and infusional chemotherapy with methotrexate / dactinomycin drug in 8 cases of gestational trophoblastic diseases was reported by Marqulis GB et al in 1975[1].Cervical molar pregnancy is very rare entity[2].Fertility preserving management is difficult in presence of torrential life threatening haemorrhage[3]. Usually, vascular recanalization occurs between 2-weeks to 4-months duration

with gelfoam as temporary embolic-agent hence this procedure effectively maintains immediate hemostasis, normal menstruation and future fertility[4]. After extensive literature search and our knowldege, trans-arterial-chemo-embolization (TACE) was first time modified and used in gestational trophoblastic diseases (GTD) hence named as "gTACE" which is a minimally invasive procedure performed under DSA-guidance to cause mechanical thrombosis of offending vessels, ischemic necrosis and cytocidal effect on tumor cells simultaneously for longer duration. Gelfoam sponge as temporary embolic-agent attracts platelet aggregation and causes acute panarteritis and mechanical thrombosis. Injectable methotrexate drug soaked and mixed with gelfoam sponge "slurry" releases slowly for longer duration of its targetted cytocidal action within the tumor mass as compared to methotrexate drug infusion alone hence a chance of systemic side effects of methotrexate drug is also markedly reduced and abnormally high plasma level of Beta-HCG secreted by abnormal cytotrobhoblast and synciotrophoblastic cells were ceased.Beta-HCG level falls within normal limits in shorter duration. "Slurry" made by mixing 3mL of non-ionic iodinated contrast media (350mg/dL) was able to visualize flow of injectable methotrexate mixed embolic materials on DSA-fluoroscopy.

Conclusions :This modified novel technique was succesful in management of rare cervical molar pregnancy and its related complications.We can termed this technique preferably as 'gTACE' as promising alternative management technique in gestational trophoblastic diseases and its related complications as life saving, future fertility and uterine preserving measures.

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Conflicts of interests: All authors have no relevant financial, personal, political, intellectual or religious conflict of interests.

Contribution to authorships : Kumar manoj and Neera Kohli have conceptualised, carried out and planned this procedure and helped in writing the manuscript.Manju LATA Verma, Uma Singh, Rekha Sachan and Pushp Lata Sankhwar have done pre and post procedure clinical work-up and searched the literature.

Details of ethical approval: There is no need of ethical approval for a single case as per our institutional ethics committee/IRB.However, written informed consent has been taken from the patient and her husband.

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